

APPENDIX E

CORE TESTING RESULTS FROM PTS LABORATORIES

Report from PTS Laboratories dated January 14, 2005 (72 pages)

Report from PTS Laboratories dated November 22, 2005 (9 pages)

January 14, 2005

James A. Kearley
Groundwater Services, Inc.
2211 Norfolk, Suite 1000
Houston, Texas 77098

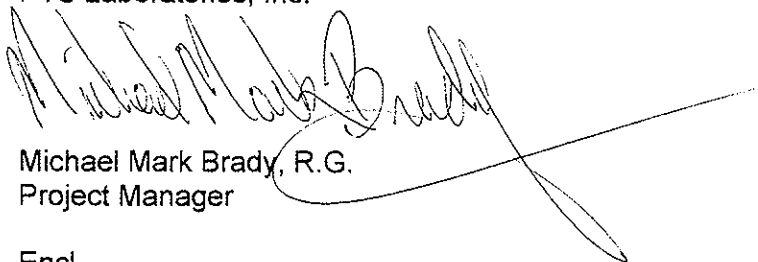
Re: Physical Properties Analyses – Final Report
PTS File No: 34379, GSI Job No. G-2876
DNAPL Characterization Study, Sauget Area 1 Sites, Sauget, Illinois

Dear Mr. Kearley:

Please find enclosed results of Physical Properties Analyses conducted on core received from your DNAPL Characterization Study, Sauget Area 1 Sites, Sauget, Illinois project, GSI Job No. G-2876. An electronic version of the report has previously been sent to your attention and a compact disk containing data deliverables is included. All analyses were performed by applicable ASTM, EPA, or API methodologies. The remaining core is currently in storage pending further analyses and will be stored for thirty days past completion of testing at no charge. Please note that core storage charges of \$65.00 per month begin February 15, 2005. You may contact me regarding return of the core to site.

PTS Laboratories, Inc. appreciates the opportunity to be of service. If you have any questions or require additional information, please give me a call at (562) 907-3607.

Sincerely,
PTS Laboratories, Inc.



Michael Mark Brady, R.G.
Project Manager

Encl.

Project Name: DNAPL Characterization Study, Saugeat Area 1 Sites, Saugeat Illinois
Project Number: GSI Job No. G-2876

TEST PROGRAM

| CORE ID | Depth, ft. | Core Recovery, ft. | Slab and Core Photo | Pore Fluid Saturations Package | Grain Size Analysis | Free Product Mobility | Effective Porosity Pkg plus Bulk D | Fluid Properties Pkg. | Notes |
|---------|---------------|--------------------------|---------------------------|--------------------------------------|---------------------------|-----------------------------|--|-----------------------------|---------------------------------------|
| 85-87 T | N/A | Plugs: 0.5 | N/A | Vert. 1.5" | Grab | Vert. 1.5" | Vert. 1.5" | Bulk Liquid | |
| A1-02 | 35-37.5 | 2.0 | Not Requested | | | | | | Hold Core Frozen. |
| A1-02 | 55-57.5 | 0.5 | Not Requested | 36.3 | 36.3 | 35.8 | 36.3 | | Hold Core Frozen. |
| A1-02 | 85-87.5 | 0.9 | Not Requested | | 55-57.5 | | | | 2-8oz Jars - Hold refrigerated. |
| A1-03 | 25-26.5 | 1.7 | Not Requested | 85.8 | 85.8 | 85.3 | 85.8 | | Hold Core Frozen. |
| A1-03 | 90-92.5 | 0.5 | Not Requested | | 25.8 | | 25.8 | | Hold Core Frozen. |
| A1-03 | 65-67 | 2.2 | Not Requested | 66.3 | 90-92.5 | 65.8 | 66.3 | | 2-8oz Jars - Hold refrigerated. |
| A1-04 | 15-17 | 1.9 | Not Requested | 16.3 | 16.3 | 15.8 | 16.3 | | GSI COC lists this core as 90-92.5 |
| A1-04 | 25-27 | 2.0 | Not Requested | 26.3 | 26.3 | 25.8 | 26.3 | | Hold Core Frozen. |
| A1-04 | 55-57 | 2.0 | Not Requested | 56.3 | 56.3 | 55.8 | 56.3 | | Hold Core Frozen. |
| A1-04 | 75-77 | 2.1 | Not Requested | 76.3 | 76.3 | 75.8 | 76.3 | | Hold Core Frozen. |
| A1-07 | 16-18 | 2.0 | Not Requested | | | | | | Hold Core Frozen. |
| A1-07 | 45-47 | 1.6 | Not Requested | | 45.8 | | 45.8 | | Hold Core Frozen. |
| A1-07 | 85-87 | 1.1 | Not Requested | | 85.8 | | 85.8 | | Hold Core Frozen. |
| A1-08 | 25-27 | 1.5 | Not Requested | 25.8 | 25.8 | 25.3 | 25.8 | | Hold Core Frozen. |
| A1-08 | 27-29 | 1.6 | Not Requested | 27.8 | 27.8 | 27.3 | 27.8 | | Hold Core Frozen. |
| A1-08 | 55-57 | 0.5 | Not Requested | 55.3 | 55.3 | 55.1 | 55.3 | | Hold Core Frozen. |
| A1-08 | 85-87 | 1.5 | Not Requested | 85.8 | 85.8 | 85.3 | 85.8 | | Hold Core Frozen. |
| A1-09 | 15-17 | 1.5 | Not Requested | | 15.8 | | 15.8 | | Hold Core Frozen. |
| A1-09 | 45-47 | 2.0 | Not Requested | | 46.3 | | 46.3 | | Hold Core Frozen. |
| A1-09 | 75-77 | 1.0 | Not Requested | | 75.8 | | 75.8 | | Hold Core Frozen. |

Project Name: DNAPL Characterization Study, Sauguet Area 1 Sites, Sauguet Illinois
Project Number: GSI Job No. G-2876

TEST PROGRAM

| CORE ID | Depth, ft. | Core Recovery, ft. | Slab and Core Photo | Pore Fluid Saturation Package | Grain Size Analysis | Free Product Mobility | Effective Porosity Pkg plus Bulk D | Fluid Properties Pkg. | Notes |
|---------|---------------|--------------------------|---------------------------|-------------------------------------|---------------------------|-----------------------------|--|-----------------------------|------------------------------------|
| | | Plugs: | N/A | Vert. 1.5" | Grab | Vert. 1.5" | Vert. 1.5" | Bulk Liquid | |
| A1-1 | 15-17 | 1.8 | Not Requested | | | | | | Hold Core Frozen. |
| A1-1 | 35-37 | 1.8 | Not Requested | | 35.8 | | 35.8 | | Hold Core Frozen. |
| A1-1 | 65-67 | 1.7 | Not Requested | | 65.8 | | 65.8 | | Hold Core Frozen. |
| A1-1 | 85-87 | 1.9 | Not Requested | | 85.8 | | 85.8 | | Hold Core Frozen. |
| A1-10 | 18-20 | 1.9 | Not Requested | | | | | | Hold Core Frozen. |
| A1-10 | 45-47 | 2.0 | Not Requested | | 46.3 | | 46.3 | | Hold Core Frozen. |
| A1-10 | 72-74 | 1.5 | Not Requested | | 72.8 | | 72.8 | | Hold Core Frozen. |
| A1-11 | 40-42.5 | 0.5 | Not Requested | | 40-42.5 | | | | 2-8oz Jars - Hold refrigerated. |
| A1-11 | 57.5-60 | 0.5 | Not Requested | | 57.5-60 | | | | 2-8oz Jars - Hold refrigerated. |
| A1-11 | 95-97.5 | 2.0 | Not Requested | | 96.3 | | 96.3 | | Hold Core Frozen. |
| A1-12 | 35-37 | 2.0 | Not Requested | | 36.3 | | 36.3 | | Hold Core Frozen. |
| A1-12 | 65-67 | 1.9 | Not Requested | | 66.3 | | 66.3 | | Hold Core Frozen. |
| A1-13 | 24-26 | 1.8 | Not Requested | 24.8 | 24.8 | 24.3 | 24.8 | | Hold Core Frozen. |
| A1-13 | 84-86 | 1.9 | Not Requested | | 85.3 | | 85.3 | | Hold Core Frozen. |
| A1-14 | 15-17 | 1.9 | Not Requested | 15.8 | 15.8 | 15.3 | 15.8 | | Hold Core Frozen. |
| A1-14 | 35-37 | 2.0 | Not Requested | 35.3 | 35.3 | 35.8 | 35.3 | | Hold Core Frozen. |
| A1-14 | 75-77 | 2.0 | Not Requested | 76.3 | 76.3 | 75.8 | 76.3 | | Hold Core Frozen. |
| A1-15 | 25-27 | 1.8 | Not Requested | | 25.8 | | 25.8 | | Hold Core Frozen. |
| A1-15 | 35-37 | 2.0 | Not Requested | | 36.3 | | 36.3 | | Hold Core Frozen. |
| A1-15 | 65-67 | 2.0 | Not Requested | | 66.3 | | 66.3 | | Hold Core Frozen. |
| A1-15 | 85-87 | 1.9 | Not Requested | | 86.3 | | 86.3 | | Hold Core Frozen. |

Project Name: DNAPL Characterization Study, Saugeat Area 1 Sites, Saugeat Illinois
Project Number: GSI Job No. G-2876

TEST PROGRAM

| CORE ID | Depth, ft. | Core Recovery, ft. | Slab and Core Photo | Pore Fluid Saturation Package | Grain Size Analysis | Free Product Mobility | Effective Porosity Pkg plus Bulk D | Fluid Properties Pkg. | Notes |
|-----------|--------------------|--------------------------|---------------------------|-------------------------------------|---------------------------|-----------------------------|--|-----------------------------|-------------------|
| | | Plugs: | N/A | Vert. 1.5" | Grab | Vert. 1.5" | Vert. 1.5" | Bulk Liquid | |
| A1-16 | 45-47.5 | 1.1 | Not Requested | | 45.8 | | 45.8 | | Hold Core Frozen. |
| A1-16 | 55-57.5 | 2.0 | Not Requested | | 56.3 | | 56.3 | | Hold Core Frozen. |
| A1-16 | 85-87.5 | 2.0 | Not Requested | | 86.3 | | 86.3 | | Hold Core Frozen. |
| A1-17 | 15-17 | 2.0 | Not Requested | | | | | | Hold Core Frozen. |
| A1-18 | 15-17 | 1.5 | Not Requested | | 15.8 | | 15.8 | | Hold Core Frozen. |
| A1-18 | 35-37 | 2.0 | Not Requested | | 36.3 | | 36.3 | | Hold Core Frozen. |
| A1-18 | 75-77 | 1.7 | Not Requested | | 75.8 | | 75.8 | | Hold Core Frozen. |
| A1-6 | 35-37 | 1.8 | Not Requested | 35.8 | 35.8 | 35.3 | 35.8 | | Hold Core Frozen. |
| A1-6 | 65-67 | 1.4 | Not Requested | | 65.8 | | 65.8 | | Hold Core Frozen. |
| A1-6 | 85-87 | 1.7 | Not Requested | | 85.8 | | 85.8 | | Hold Core Frozen. |
| Sample 1* | Misc. | 0.5 | Not Requested | | | | | | Hold Core Frozen. |
| Smboe 15 | N/A | 0.5 | Not Requested | | | | | | Hold Core Frozen. |
| | | | | | | | | | |
| TOTALS: | 50 cores 8 Jars | 85.5 | 0 | 16 | 47 | 16 | 43 | 2 | |

Fluid Pairs

| Pair 1 | | Pair 2 | |
|-------------|------------|-------------|--------------|
| Water ID: | EE-11 NAPL | Water ID: | BR-1 (water) |
| Product ID: | EE-11 NAPL | Product ID: | BR-1 (NAPL) |

PHYSICAL PROPERTIES DATA - PORE FLUID SATURATIONS

PROJECT NAME: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
PROJECT NO: GSI Job No. G-2876

METHODS: API RP 40 / ASTM D2216 API RP 40 API RP 40 API RP 40

| SAMPLE ID. | DEPTH, ft. | SAMPLE ORIENTATION (1) | MOISTURE CONTENT (% wt) | DENSITY | | POROSITY, %Vb (2) | | PORE FLUID SATURATIONS, % Pv (3) | |
|-----------------|------------|------------------------|-------------------------|-------------|--------------|-------------------|------------|----------------------------------|--------|
| | | | | BULK (g/cc) | GRAIN (g/cc) | TOTAL | AIR FILLED | WATER | NAPL |
| A1-08 (25-27) | 25.8 | V | 49.3 | 1.20 | 2.51 | 52.2 | 0.1 | 69.4 | 30.4 |
| A1-08 (27-29) | 27.8 | V | 23.0 | 1.59 | 2.63 | 39.6 | 4.9 | 76.7 | 10.9 |
| A1-08 (55-57) | 55.3 | V | 15.5 | 1.74 | 2.64 | 34.2 | 7.9 | 72.7 | 4.4 |
| A1-08 (85-87) | 85.8 | V | 13.3 | 1.84 | 2.64 | 30.3 | 6.2 | 76.2 | 3.5 |
| A1-13 (24-26) | 24.8 | V | 19.3 | 1.60 | 2.64 | 39.3 | 8.4 | 78.5 | 0.2 |
| A1-14 (15-17) | 15.8 | V | 24.2 | 1.44 | 2.61 | 45.0 | 14.0 | 49.4 | 19.4 |
| A1-14 (35-37) | 35.3 | V | 11.9 | 1.85 | 2.64 | 30.0 | 8.9 | 63.9 | 6.4 |
| A1-6 (35-37) | 35.8 | V | 15.3 | 1.75 | 2.64 | 33.6 | 6.7 | 80.1 | ND<0.1 |
| A1-02 (35-37.5) | 36.3 | V | 13.5 | 1.78 | 2.63 | 32.1 | 8.2 | 73.3 | 1.1 |
| A1-02 (85-87.5) | 85.8 | V | 11.1 | 1.78 | 2.64 | 32.6 | 12.9 | 59.6 | 0.8 |
| A1-03 (65-67) | 66.3 | V | 16.1 | 1.64 | 2.64 | 37.9 | 11.7 | 67.1 | 2.0 |
| A1-04 (15-17) | 16.3 | V | 27.6 | 1.30 | 2.62 | 50.2 | 14.6 | 69.2 | 1.8 |
| A1-04 (25-27) | 26.3 | V | 20.9 | 1.49 | 2.64 | 43.4 | 12.5 | 69.4 | 1.8 |
| A1-04 (55-57) | 56.3 | V | 20.2 | 1.57 | 2.64 | 40.5 | 8.8 | 77.1 | 1.0 |
| A1-04 (75-77) | 76.3 | V | 15.4 | 1.73 | 2.64 | 34.4 | 8.4 | 70.8 | 4.8 |
| A1-14 (75-77) | 76.3 | V | 16.2 | 1.71 | 2.64 | 35.2 | 7.6 | 78.0 | 0.5 |

(1) Sample Orientation: H = horizontal; V = vertical (2) Total Porosity = no pore fluids in place; all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids (3) Water = 0.9983 g/cc, Hydrocarbon = 1.442 g/cc; Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PHYSICAL PROPERTIES DATA

Drainage (Effective) Porosity

PROJECT NAME: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 PROJECT NO: GSI Job No. G-2876

| SAMPLE ID. | DEPTH, ft. | METHOD: SAMPLE ORIENTATION (1) | API RP 40 BULK DENSITY, (g/cc) | ASTM D 425M | |
|-----------------|---------------|---|---|----------------|--------------------|
| | | | | POROSITY | |
| | | | | TOTAL, % Vb | EFFECTIVE, % Vb |
| A1-1 (35-37) | 35.8 | V | 1.54 | 37.3 | 33.2 |
| A1-1 (65-67) | 65.8 | V | 1.83 | 27.0 | 24.3 |
| A1-1 (85-87) | 85.8 | V | 1.76 | 28.9 | 26.0 |
| A1-10 (45-47) | 46.3 | V | 1.89 | 27.9 | 23.8 |
| A1-10 (72-74) | 72.8 | V | 1.69 | 32.5 | 30.5 |
| A1-11 (95-97.5) | 96.3 | V | 1.79 | 27.3 | 25.4 |
| A1-12 (35-37) | 36.3 | V | 1.63 | 31.8 | 27.8 |
| A1-12 (65-67) | 66.3 | V | 1.84 | 25.8 | 23.0 |
| A1-13 (84-86) | 85.3 | V | 1.80 | 29.3 | 25.9 |
| A1-15 (25-27) | 25.8 | V | 1.54 | 35.0 | 31.0 |
| A1-15 (35-37) | 36.3 | V | 1.70 | 31.3 | 28.3 |
| A1-15 (65-67) | 66.3 | V | 1.65 | 31.3 | 28.2 |
| A1-15 (85-87) | 86.3 | V | 1.66 | 30.0 | 28.2 |

(1) Sample Orientation: H = horizontal; V = vertical Vb = Bulk Volume, cc;

PHYSICAL PROPERTIES DATA

Drainage (Effective) Porosity

PROJECT NAME: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
PROJECT NO: GSI Job No. G-2876

| SAMPLE ID. | DEPTH, ft. | METHOD: SAMPLE ORIENTATION (1) | API RP 40 BULK DENSITY, (g/cc) | ASTM D 425M | |
|-----------------|---------------|---|---|----------------|--------------------|
| | | | | POROSITY | |
| | | | | TOTAL, % Vb | EFFECTIVE, % Vb |
| A1-03 (25-26.5) | 25.8 | V | 1.35 | 37.0 | 27.7 |
| A1-07 (45-47) | 45.8 | V | 1.72 | 26.4 | 22.0 |
| A1-07 (85-87) | 85.8 | V | 1.53 | 34.9 | 31.6 |
| A1-09 (15-17) | 15.8 | V | 1.41 | 35.8 | 32.1 |
| A1-09 (45-47) | 46.3 | V | 1.84 | 28.4 | 25.5 |
| A1-09 (75-77) | 75.8 | V | 1.69 | 29.8 | 27.6 |

(1) Sample Orientation: H = horizontal; V = vertical Vb = Bulk Volume, cc;

PHYSICAL PROPERTIES DATA

Drainage (Effective) Porosity

PROJECT NAME: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 PROJECT NO: GSI Job No. G-2876

| SAMPLE ID. | DEPTH, ft. | METHOD: SAMPLE ORIENTATION (1) | API RP 40 BULK DENSITY, (g/cc) | ASTM D 425M | |
|-----------------|---------------|---|---|----------------|--------------------|
| | | | | POROSITY | |
| | | | | TOTAL, % Vb | EFFECTIVE, % Vb |
| A1-16 (45-47.5) | 45.8 | V | 1.69 | 35.2 | 31.2 |
| A1-16 (55-57.5) | 56.3 | V | 1.71 | 30.6 | 28.1 |
| A1-16 (85-87.5) | 86.3 | V | 1.76 | 28.8 | 26.7 |
| A1-18 (15-17) | 15.8 | V | 1.56 | 38.4 | 34.3 |
| A1-18 (35-37) | 36.3 | V | 1.62 | 30.6 | 27.4 |
| A1-18 (75-77) | 75.8 | V | 1.82 | 27.3 | 24.5 |
| A1-6 (65-67) | 65.8 | V | 1.69 | 29.3 | 27.2 |
| A1-6 (85-87) | 85.8 | V | 1.97 | 24.1 | 20.7 |

(1) Sample Orientation: H = horizontal; V = vertical Vb = Bulk Volume, cc;

PHYSICAL PROPERTIES DATA

Drainage (Effective) Porosity

PROJECT NAME: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 PROJECT NO: GSI Job No. G-2876

| SAMPLE ID. | DEPTH, ft. | METHOD: SAMPLE ORIENTATION (1) | API RP 40 BULK DENSITY, (g/cc) | ASTM D 425M | |
|-----------------|---------------|---|---|----------------|--------------------|
| | | | | POROSITY | |
| | | | | TOTAL, % Vb | EFFECTIVE, % Vb |
| A1-08 (25-27) | 25.8 | V | 1.16 | 52.6 | 32.8 |
| A1-08 (27-29) | 27.8 | V | 1.57 | 37.0 | 33.5 |
| A1-08 (55-57) | 55.3 | V | 1.68 | 29.8 | 27.6 |
| A1-08 (85-87) | 85.8 | V | 1.75 | 26.5 | 24.1 |
| A1-13 (24-26) | 24.8 | V | 1.64 | 36.8 | 31.2 |
| A1-14 (15-17) | 15.8 | V | 1.46 | 43.1 | 31.2 |
| A1-14 (35-37) | 35.3 | V | 1.78 | 26.1 | 23.8 |
| A1-6 (35-37) | 35.8 | V | 1.74 | 30.0 | 27.3 |
| A1-02 (35-37.5) | 36.3 | V | 1.79 | 29.3 | 26.7 |
| A1-02 (85-87.5) | 85.8 | V | 1.56 | 32.2 | 30.8 |
| A1-03 (65-67) | 66.3 | V | 1.53 | 32.4 | 30.1 |
| A1-04 (15-17) | 16.3 | V | 1.34 | 49.1 | 31.9 |
| A1-04 (25-27) | 26.3 | V | 1.49 | 40.3 | 31.4 |
| A1-04 (55-57) | 56.3 | V | 1.62 | 38.1 | 34.1 |
| A1-04 (75-77) | 76.3 | V | 1.67 | 29.9 | 27.4 |
| A1-14 (75-77) | 76.3 | V | 1.83 | 35.7 | 32.0 |

(1) Sample Orientation: H = horizontal; V = vertical Vb = Bulk Volume, cc;

FREE PRODUCT MOBILITY: INITIAL AND RESIDUAL SATURATIONS

PROJECT NAME: DNAPL Characterization Study, Saugeat Area 1 Sites, Saugeat Illinois
PROJECT NO: GSI Job No. G-2876

METHODS:

| SAMPLE ID | DEPTH, ft. | SAMPLE ORIENTATION (1) | BULK DENSITY, (g/cc) | GRAIN DENSITY, (g/cc) | TOTAL POROSITY, %Vb | ASTM D425M, DEAN-STARK | | | |
|---|------------|------------------------|----------------------|-----------------------|---------------------|------------------------|-----------------------|----------------------------|-----------------------|
| | | | | | | PORE FLUID SATURATIONS | | After Centrifuge at 1000xG | |
| | | | | | | WATER (Swi) SATURATION | NAPL (Soi) SATURATION | WATER (Srw) SATURATION | NAPL (Sor) SATURATION |
| A1-14 (15-17) | 15.3 | V | 1.30 | 2.58 | 49.6 | 40.4 | 26.1 | 11.8 | 17.1 |
| NOTE: Dark brown oily DNAPL produced. | | | | | | | | | |
| A1-14 (35-37) | 35.8 | V | 1.57 | 2.64 | 40.5 | 76.7 | 4.0 | 9.5 | 3.4 |
| NOTE: Dark brown oily DNAPL produced. Strong chlorinated hydrocarbon odor to produced water. | | | | | | | | | |
| A1-14 (75-77) | 75.8 | V | 1.33 | 2.50 | 46.6 | 88.5 | 4.7 | 23.6 | 3.5 |
| NOTE: Trace of dark brown oily DNAPL produced. Strong chlorinated hydrocarbon odor to produced water. | | | | | | | | | |
| A1-06 (35-37) | 35.3 | V | 1.76 | 2.62 | 33.0 | 77.1 | 0.7 | 7.1 | 0.3 |
| NOTE: No oily DNAPL was produced by sample A1-06 (35-37) @ 35.3 after centrifuging at 1000xG. Light chlorinated hydrocarbon odor to produced water. | | | | | | | | | |

N/A = Not Analyzed. Vb = Bulk Volume, Pv = Pore Volume. (1) H = horizontal, V = vertical
Soi = Initial NAPL Saturation as received prior to centrifuging at 1000xG, Swi = Initial Water Saturation as received prior to centrifuging at 1000xG
Sor = Residual NAPL Saturation after centrifuging at 1000xG, Srw = Residual Water Saturation after centrifuging at 1000xG
Fluid Densities for pore fluid saturation calculations: Water = 0.9983 g/cc, NAPL = 1.442 g/cc.

FREE PRODUCT MOBILITY: INITIAL AND RESIDUAL SATURATIONS

PROJECT NAME: DNAPL Characterization Study, Sauguet Area 1 Sites, Sauguet Illinois
PROJECT NO: GSI Job No. G-2876

METHODS:

| SAMPLE ID. | DEPTH, ft. | SAMPLE ORIENTATION (1) | BULK DENSITY, (g/cc) | GRAIN DENSITY, (g/cc) | TOTAL POROSITY, %Vb | ASTM D425M, DEAN-STARK | | | |
|------------|------------|------------------------|----------------------|-----------------------|---------------------|---------------------------|-----------------------|------------------------------|-----------------------|
| | | | | | | Initial Fluid Saturations | | PORE FLUID SATURATIONS, % Pv | |
| | | | | | | WATER (Swi) SATURATION | NAPL (Soi) SATURATION | WATER (Srw) SATURATION | NAPL (Sor) SATURATION |

A1-04 (75-77) 75.8 V 1.72 2.65 35.0 77.4 0.3 6.8 0.3

NOTE: No free product was produced by sample A1-04 (75-77) @ 75.8 after centrifuging at 1000xG. Light chlorinated hydrocarbon odor to produced water.

A1-08 (25-27) 25.3 V 1.53 2.62 41.6 45.3 16.3 9.5 11.9

NOTE: Brown oily DNAPL produced (polysulfone centrifuge cup shattered during run, DNAPL production is probably greater than amount reported).

A1-08 (27-29) 27.3 V 1.51 2.63 42.9 68.5 21.7 23.8 8.7

NOTE: Dark brown oily DNAPL and LNAPL produced.

A1-08 (55-57) 55.1 V 1.68 2.64 36.4 75.6 2.6 6.1 1.8

NOTE: No oily DNAPL was produced by sample A1-08 (55-57) @ 55.1 after centrifuging at 1000xG. Strong chlorinated hydrocarbon odor to produced water. Clear hydrocarbon produced with water in bottom of cup.

A1-08 (85-87) 85.3 V 1.81 2.65 31.6 78.2 3.1 9.6 0.5

NOTE: Trace amount of light brown NAPL produced. Moderate chlorinated hydrocarbon odor to produced water.

A1-13 (24-26) 24.3 V 1.55 2.63 41.0 77.0 1.8 9.3 0.7

NOTE: No oily DNAPL was produced by sample A1-13 (24-26) @ 24.3 after centrifuging at 1000xG. Light chlorinated hydrocarbon odor and light brown color to produced water. Clear hydrocarbon produced with water in bottom of cup.

N/A = Not Analyzed. Vb = Bulk Volume, Pv = Pore Volume. (1) H = horizontal, V = vertical
Soi = Initial NAPL Saturation as received prior to centrifuging at 1000xG, Swi = Initial Water Saturation as received prior to centrifuging at 1000xG
Sor = Residual NAPL Saturation after centrifuging at 1000xG, Srw = Residual Water Saturation after centrifuging at 1000xG
Fluid Densities for pore fluid saturation calculations: Water = 0.9983 g/cc, NAPL = 1.442 g/cc.

FREE PRODUCT MOBILITY: INITIAL AND RESIDUAL SATURATIONS

PROJECT NAME: DNAPL Characterization Study, Sauguet Area 1 Sites, Sauguet Illinois
PROJECT NO: GSI Job No. G-2876

METHODS:

| SAMPLE ID. | DEPTH, ft. | SAMPLE ORIENTATION (1) | BULK DENSITY, (g/cc) | GRAIN DENSITY, (g/cc) | TOTAL POROSITY, %Vb | ASTM D425M, DEAN-STARK | | | |
|------------|------------|------------------------|----------------------|-----------------------|---------------------|---------------------------|-----------------------|---|-----------------------|
| | | | | | | Initial Fluid Saturations | | PORE FLUID SATURATIONS, % Pv | |
| | | | | | | WATER (Swi) SATURATION | NAPL (Soi) SATURATION | After Centrifuge at 1000xG WATER (Srw) SATURATION | NAPL (Sor) SATURATION |

A1-02 (35-37.5)

35.8 V 1.76 2.62 32.9 77.6 0.2 13.9 0.2

NOTE: No free product was produced by sample A1-02 (35-37.5) @ 35.8 after centrifuging at 1000xG. Moderate chlorinated hydrocarbon odor to produced water. Possible small amount of microdrops of clear hydrocarbon or emulsion in produced water.

A1-02 (85-87.5)

85.3 V 1.74 2.64 33.9 77.4 ND<0.1 4.9 ND<0.1

NOTE: No free product was produced by sample A1-02 (85-87.5) @ 85.3 after centrifuging at 1000xG. Moderate chlorinated hydrocarbon odor to produced water. Small amount (<0.5ml) of clear hydrocarbon produced with water in bottom of cup.

A1-03 (65-67)

65.8 V 1.69 2.64 35.9 78.7 19.7 3.6

NOTE: Trace of DNAPL produced by sample A1-03 (65-67) @ 65.8 after centrifuging at 1000xG. Moderate chlorinated hydrocarbon odor to produced water. DNAPL produced by sample is brown oily liquid denser than water.

A1-04 (15-17)

15.8 V 1.44 2.60 44.7 83.1 1.3 37.0 1.3

NOTE: No free product was produced by sample A1-04 (15-17) @ 15.8 after centrifuging at 1000xG. Strong chlorinated hydrocarbon odor to produced water.

A1-04 (25-27)

25.8 V 1.68 2.64 36.3 59.2 0.5 16.5 0.5

NOTE: No free product was produced by sample A1-04 (25-27) @ 25.8 after centrifuging at 1000xG. Moderate chlorinated hydrocarbon odor to produced water.

A1-04 (55-57)

55.8 V 1.71 2.64 35.4 77.9 0.6 8.1 0.6

NOTE: No free product was produced by sample A1-04 (55-57) @ 55.8 after centrifuging at 1000xG. Moderate chlorinated hydrocarbon odor to produced water.

N/A = Not Analyzed. Vb = Bulk Volume, Pv = Pore Volume. (1) H = horizontal, V = vertical

Soi = Initial NAPL Saturation as received prior to centrifuging at 1000xG, Swi = Initial Water Saturation as received prior to centrifuging at 1000xG

Sor = Residual NAPL Saturation after centrifuging at 1000xG, Srw = Residual Water Saturation after centrifuging at 1000xG

Fluid Densities for pore fluid saturation calculations: Water = 0.9983 g/cc, NAPL = 1.442 g/cc.

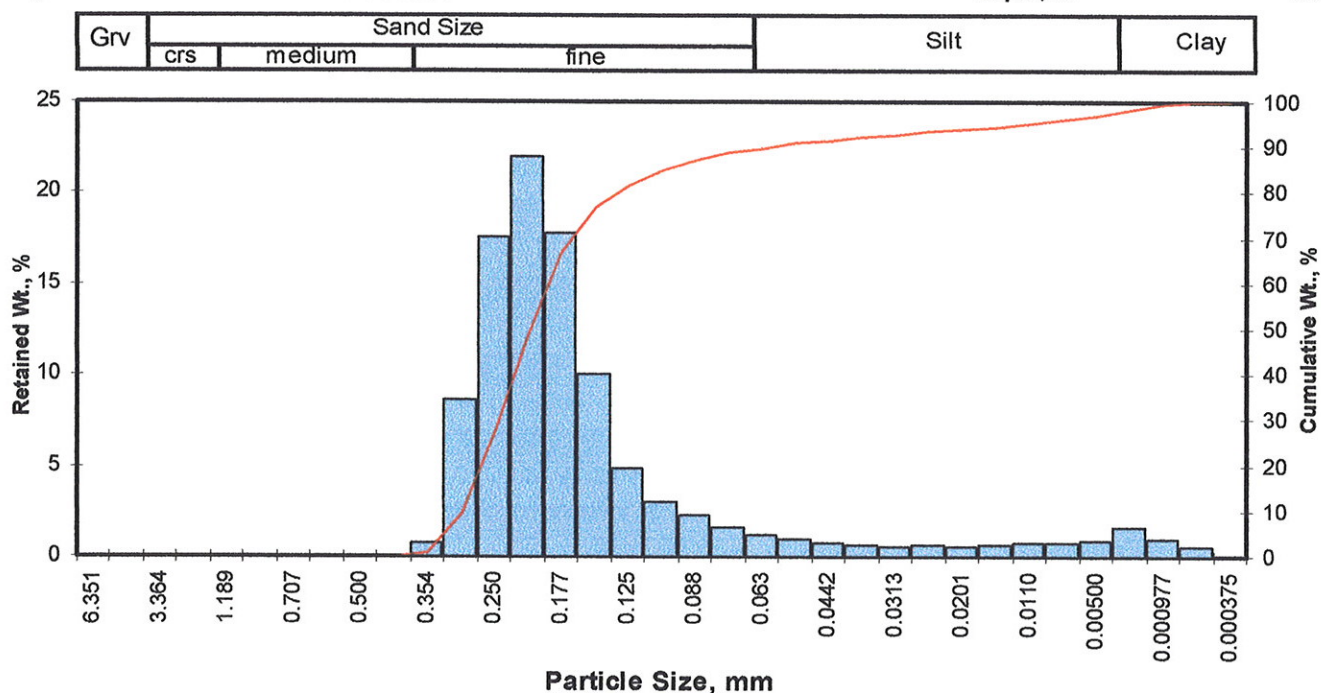
PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4484M)

PROJECT NAME: DNAPL Characterization Study, Saugeet Area 1 Sites, Saugeet Illinois
PROJECT NO: GSI Job No. G-2876

| Sample ID | Depth, ft. | Mean Grain Size Description (1) | Median Grain Size mm | Particle Size Distribution, wt. percent | | | | | | Silt & Clay |
|---------------|------------|---------------------------------|----------------------|---|-----------|--------|-------|-------|------|-------------|
| | | | | Gravel | Sand Size | | | Silt | | |
| | | | | | Coarse | Medium | Fine | | | |
| A1-09 (15-17) | 15.8 | Fine sand | 0.208 | 0.00 | 0.00 | 0.01 | 88.64 | 8.25 | 3.10 | 11.35 |
| A1-1 (35-37) | 35.8 | Fine sand | 0.229 | 0.00 | 0.00 | 5.95 | 86.90 | 5.34 | 1.81 | 7.15 |
| A1-1 (65-67) | 65.8 | Medium sand | 0.882 | 0.00 | 0.00 | 87.90 | 10.17 | 1.62 | 0.31 | 1.93 |
| A1-10 (72-74) | 72.8 | Medium sand | 0.803 | 0.00 | 0.00 | 91.93 | 6.83 | 1.01 | 0.23 | 1.24 |
| A1-12 (35-37) | 36.3 | Medium sand | 0.359 | 0.00 | 0.00 | 43.70 | 51.19 | 3.98 | 1.14 | 5.12 |
| A1-13 (84-86) | 85.3 | Medium sand | 0.569 | 0.00 | 0.00 | 71.21 | 23.66 | 3.50 | 1.63 | 5.13 |
| A1-15 (85-87) | 86.3 | Medium sand | 0.581 | 0.00 | 0.00 | 64.23 | 14.94 | 13.61 | 7.21 | 20.82 |

Client: Groundwater Services, Inc. **PTS File No:** 34379
Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois **Sample ID:** A1-09 (15-17)
Project No: GSI Job No. G-2876 **Depth, ft:** 15.8



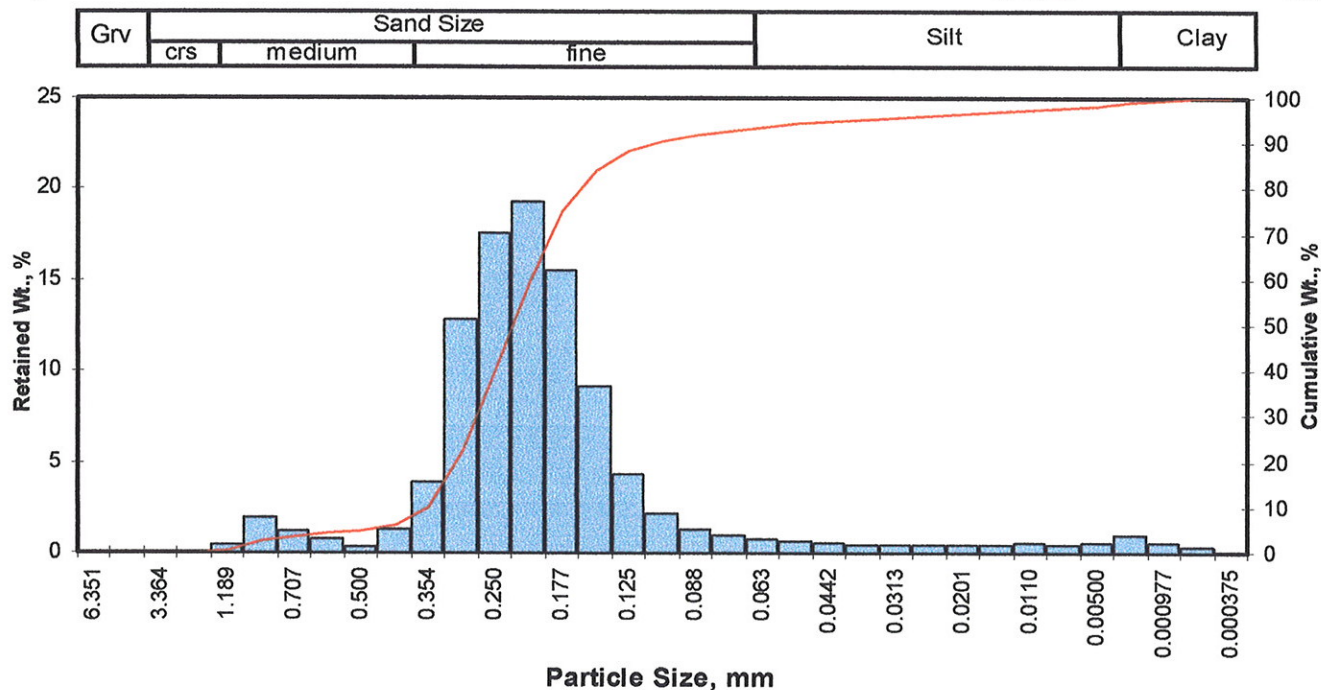
| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|--|-----------|---------------|-------------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | | | Inches | Millimeters |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 5 | 1.62 | 0.0128 | 0.325 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 | 10 | 1.76 | 0.0116 | 0.295 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 | 16 | 1.84 | 0.0110 | 0.279 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 | 25 | 1.97 | 0.0100 | 0.255 |
| 0.0468 | 1.189 | -0.25 | 16 | 0.00 | 0.00 | 0.00 | 40 | 2.15 | 0.0089 | 0.226 |
| 0.0331 | 0.841 | 0.25 | 20 | 0.00 | 0.00 | 0.00 | 50 | 2.26 | 0.0082 | 0.208 |
| 0.0278 | 0.707 | 0.50 | 25 | 0.00 | 0.00 | 0.00 | 60 | 2.40 | 0.0074 | 0.189 |
| 0.0234 | 0.595 | 0.75 | 30 | 0.00 | 0.00 | 0.00 | 75 | 2.71 | 0.0060 | 0.153 |
| 0.0197 | 0.500 | 1.00 | 35 | 0.00 | 0.00 | 0.00 | 84 | 3.19 | 0.0043 | 0.109 |
| 0.0166 | 0.420 | 1.25 | 40 | 0.01 | 0.01 | 0.01 | 90 | 4.04 | 0.0024 | 0.061 |
| 0.0139 | 0.354 | 1.50 | 45 | 0.74 | 0.74 | 0.75 | 95 | 6.30 | 0.0005 | 0.013 |
| 0.0117 | 0.297 | 1.75 | 50 | 8.63 | 8.63 | 9.38 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 17.60 | 17.60 | 26.98 | | | | |
| 0.0083 | 0.210 | 2.25 | 70 | 22.00 | 22.00 | 48.97 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 17.80 | 17.80 | 66.77 | | | | |
| 0.0059 | 0.149 | 2.75 | 100 | 9.99 | 9.99 | 76.76 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 4.90 | 4.90 | 81.66 | | | | |
| 0.0041 | 0.105 | 3.25 | 140 | 3.04 | 3.04 | 84.70 | | | | |
| 0.0035 | 0.088 | 3.50 | 170 | 2.28 | 2.28 | 86.98 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 1.67 | 1.67 | 88.65 | | | | |
| 0.0025 | 0.063 | 4.00 | 230 | 1.20 | 1.20 | 89.85 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 0.93 | 0.93 | 90.78 | | | | |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.77 | 0.77 | 91.55 | | | | |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.64 | 0.64 | 92.19 | | | | |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.53 | 0.53 | 92.72 | | | | |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.61 | 0.61 | 93.33 | | | | |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.59 | 0.59 | 93.92 | | | | |
| 0.000615 | 0.0156 | 6.00 | | 0.62 | 0.62 | 94.54 | | | | |
| 0.000435 | 0.0110 | 6.50 | | 0.77 | 0.77 | 95.31 | | | | |
| 0.000308 | 0.00781 | 7.00 | | 0.72 | 0.72 | 96.03 | | | | |
| 0.000197 | 0.00500 | 7.65 | | 0.87 | 0.87 | 96.90 | | | | |
| 0.000077 | 0.00195 | 9.00 | | 1.57 | 1.57 | 98.47 | | | | |
| 0.000038 | 0.000977 | 10.00 | | 0.94 | 0.94 | 99.41 | | | | |
| 0.000019 | 0.000488 | 11.00 | | 0.54 | 0.54 | 99.95 | | | | |
| 0.000015 | 0.000375 | 11.38 | | 0.05 | 0.05 | 100.00 | | | | |
| TOTALS | | | | 100.00 | 100.00 | 100.00 | | | | |

| Grain Size Description (ASTM-USCS Scale) | | | | Fine sand (based on Mean from Trask) | | | |
|--|---------------------|----------------|--|--------------------------------------|--|--|--|
| Description | Retained on Sieve # | Weight Percent | | | | | |
| Gravel | 4 | 0.00 | | | | | |
| Coarse Sand | 10 | 0.00 | | | | | |
| Medium Sand | 40 | 0.01 | | | | | |
| Fine Sand | 200 | 88.64 | | | | | |
| Silt | >0.005 mm | 8.25 | | | | | |
| Clay | <0.005 mm | 3.10 | | | | | |
| Total | | 100 | | | | | |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 2.26 | 2.26 | 2.26 |
| Median, in. | 0.0082 | 0.0082 | 0.0082 |
| Median, mm | 0.208 | 0.208 | 0.208 |
| Mean, phi | 2.29 | 2.52 | 2.43 |
| Mean, in. | 0.0080 | 0.0069 | 0.0073 |
| Mean, mm | 0.204 | 0.175 | 0.185 |
| Sorting | 1.290 | 0.674 | 1.046 |
| Skewness | 0.950 | 0.377 | 0.551 |
| Kurtosis | 0.217 | 2.468 | 2.611 |

Client: Groundwater Services, Inc.
Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
Project No: GSI Job No. G-2876

PTS File No: 34379
Sample ID: A1-1 (35-37)
Depth, ft: 35.8



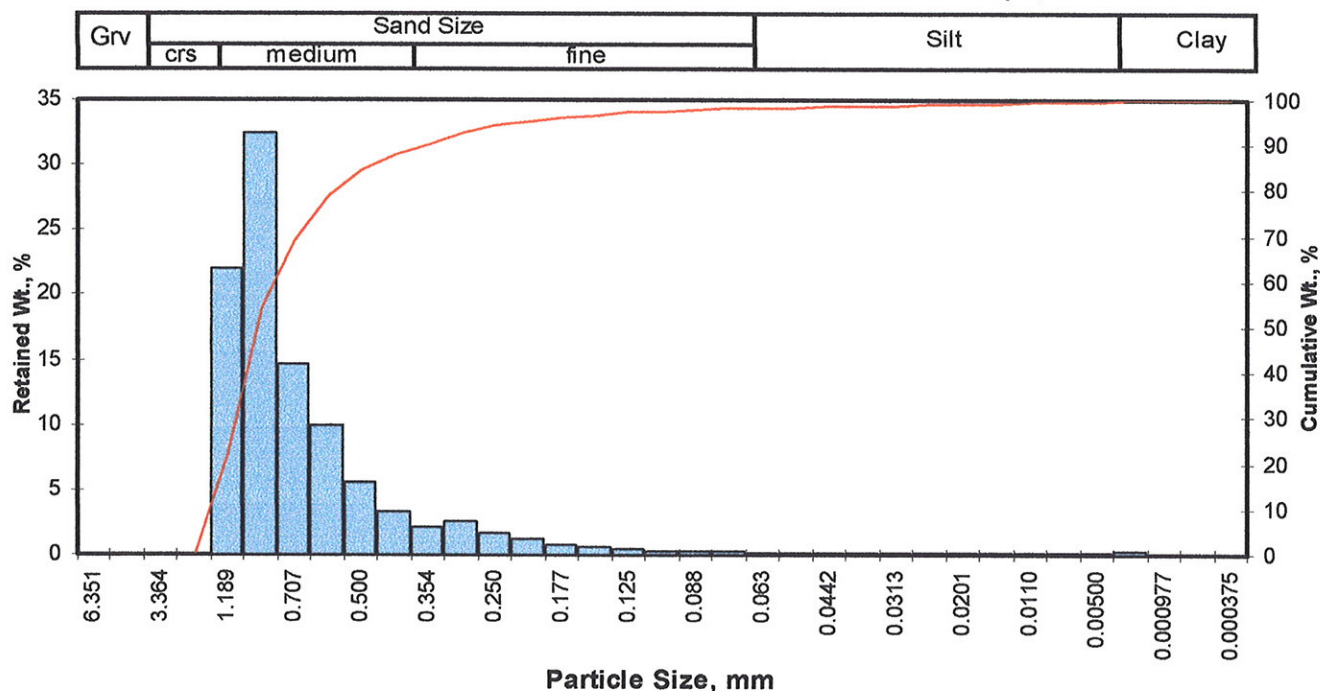
| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|--|-------------|---------------|-------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | Inches | Millimeters | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 5 | 1.06 | 0.0189 | 0.479 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 | 10 | 1.50 | 0.0139 | 0.353 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 | 16 | 1.62 | 0.0128 | 0.325 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 | 25 | 1.78 | 0.0114 | 0.290 |
| 0.0468 | 1.189 | -0.25 | 16 | 0.46 | 0.46 | 0.46 | 40 | 2.00 | 0.0099 | 0.250 |
| 0.0331 | 0.841 | 0.25 | 20 | 1.93 | 1.93 | 2.39 | 50 | 2.13 | 0.0090 | 0.229 |
| 0.0278 | 0.707 | 0.50 | 25 | 1.19 | 1.19 | 3.58 | 60 | 2.26 | 0.0082 | 0.209 |
| 0.0234 | 0.595 | 0.75 | 30 | 0.76 | 0.76 | 4.34 | 75 | 2.50 | 0.0070 | 0.177 |
| 0.0197 | 0.500 | 1.00 | 35 | 0.35 | 0.35 | 4.69 | 84 | 2.75 | 0.0059 | 0.149 |
| 0.0166 | 0.420 | 1.25 | 40 | 1.26 | 1.26 | 5.95 | 90 | 3.18 | 0.0043 | 0.110 |
| 0.0139 | 0.354 | 1.50 | 45 | 3.83 | 3.83 | 9.78 | 95 | 4.65 | 0.0016 | 0.040 |
| 0.0117 | 0.297 | 1.75 | 50 | 12.80 | 12.80 | 22.59 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 17.60 | 17.61 | 40.19 | | | | |
| 0.0083 | 0.210 | 2.25 | 70 | 19.30 | 19.31 | 59.50 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 15.50 | 15.51 | 75.00 | | | | |
| 0.0059 | 0.149 | 2.75 | 100 | 9.11 | 9.11 | 84.12 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 4.32 | 4.32 | 88.44 | | | | |
| 0.0041 | 0.105 | 3.25 | 140 | 2.14 | 2.14 | 90.58 | | | | |
| 0.0035 | 0.088 | 3.50 | 170 | 1.32 | 1.32 | 91.90 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 0.95 | 0.95 | 92.85 | | | | |
| 0.0025 | 0.063 | 4.00 | 230 | 0.74 | 0.74 | 93.59 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 0.61 | 0.61 | 94.20 | | | | |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.53 | 0.53 | 94.73 | | | | |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.45 | 0.45 | 95.18 | | | | |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.38 | 0.38 | 95.56 | | | | |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.43 | 0.43 | 95.99 | | | | |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.39 | 0.39 | 96.38 | | | | |
| 0.000615 | 0.0156 | 6.00 | | 0.39 | 0.39 | 96.77 | | | | |
| 0.000435 | 0.0110 | 6.50 | | 0.49 | 0.49 | 97.26 | | | | |
| 0.000308 | 0.00781 | 7.00 | | 0.43 | 0.43 | 97.69 | | | | |
| 0.000197 | 0.00500 | 7.65 | | 0.50 | 0.50 | 98.19 | | | | |
| 0.000077 | 0.00195 | 9.00 | | 0.93 | 0.93 | 99.12 | | | | |
| 0.000038 | 0.000977 | 10.00 | | 0.55 | 0.55 | 99.67 | | | | |
| 0.000019 | 0.000488 | 11.00 | | 0.30 | 0.30 | 99.97 | | | | |
| 0.000015 | 0.000375 | 11.38 | | 0.03 | 0.03 | 100.00 | | | | |
| TOTALS | | | | 100.00 | 100.00 | 100.00 | | | | |

| Measure | Trask | Inman | Folk-Ward |
|--|--------|--------------------------------------|-----------|
| Median, phi | 2.13 | 2.13 | 2.13 |
| Median, in. | 0.0090 | 0.0090 | 0.0090 |
| Median, mm | 0.229 | 0.229 | 0.229 |
| Mean, phi | 2.10 | 2.18 | 2.17 |
| Mean, in. | 0.0092 | 0.0087 | 0.0088 |
| Mean, mm | 0.234 | 0.220 | 0.223 |
| Sorting | 1.281 | 0.563 | 0.825 |
| Skewness | 0.990 | 0.101 | 0.254 |
| Kurtosis | 0.234 | 2.188 | 2.055 |
| Grain Size Description (ASTM-USCS Scale) | | Fine sand (based on Mean from Trask) | |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 5.95 |
| Fine Sand | 200 | 86.90 |
| Silt | >0.005 mm | 5.34 |
| Clay | <0.005 mm | 1.81 |
| Total | | 100 |

Client: Groundwater Services, Inc.
Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
Project No: GSI Job No. G-2876

PTS File No: 34379
Sample ID: A1-1 (65-67)
Depth, ft: 65.8



Particle Size, mm

| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 22.00 | 21.99 | 21.99 |
| 0.0331 | 0.841 | 0.25 | 20 | 32.50 | 32.49 | 54.48 |
| 0.0278 | 0.707 | 0.50 | 25 | 14.60 | 14.60 | 69.08 |
| 0.0234 | 0.595 | 0.75 | 30 | 9.95 | 9.95 | 79.03 |
| 0.0197 | 0.500 | 1.00 | 35 | 5.57 | 5.57 | 84.60 |
| 0.0166 | 0.420 | 1.25 | 40 | 3.31 | 3.31 | 87.90 |
| 0.0139 | 0.354 | 1.50 | 45 | 2.12 | 2.12 | 90.02 |
| 0.0117 | 0.297 | 1.75 | 50 | 2.52 | 2.52 | 92.54 |
| 0.0098 | 0.250 | 2.00 | 60 | 1.66 | 1.66 | 94.20 |
| 0.0083 | 0.210 | 2.25 | 70 | 1.16 | 1.16 | 95.36 |
| 0.0070 | 0.177 | 2.50 | 80 | 0.78 | 0.78 | 96.14 |
| 0.0059 | 0.149 | 2.75 | 100 | 0.60 | 0.60 | 96.74 |
| 0.0049 | 0.125 | 3.00 | 120 | 0.48 | 0.48 | 97.22 |
| 0.0041 | 0.105 | 3.25 | 140 | 0.35 | 0.35 | 97.57 |
| 0.0035 | 0.088 | 3.50 | 170 | 0.27 | 0.27 | 97.84 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.23 | 0.23 | 98.07 |
| 0.0025 | 0.063 | 4.00 | 230 | 0.21 | 0.21 | 98.28 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.18 | 0.18 | 98.46 |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.15 | 0.15 | 98.61 |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.14 | 0.14 | 98.75 |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.12 | 0.12 | 98.87 |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.14 | 0.14 | 99.01 |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.12 | 0.12 | 99.13 |
| 0.000615 | 0.0156 | 6.00 | | 0.12 | 0.12 | 99.25 |
| 0.000435 | 0.0110 | 6.50 | | 0.15 | 0.15 | 99.40 |
| 0.000308 | 0.00781 | 7.00 | | 0.14 | 0.14 | 99.54 |
| 0.000197 | 0.00500 | 7.65 | | 0.15 | 0.15 | 99.69 |
| 0.000077 | 0.00195 | 9.00 | | 0.23 | 0.23 | 99.92 |
| 0.000038 | 0.000977 | 10.00 | | 0.08 | 0.07 | 100.00 |
| 0.000019 | 0.000488 | 11.00 | | 0.00 | 0.00 | 100.00 |
| 0.000015 | 0.000375 | 11.38 | | 0.00 | 0.00 | 100.00 |
| TOTALS | | | | 100.00 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -0.83 | 0.0700 | 1.777 |
| 10 | -0.66 | 0.0622 | 1.579 |
| 16 | -0.45 | 0.0539 | 1.370 |
| 25 | -0.20 | 0.0453 | 1.152 |
| 40 | 0.03 | 0.0386 | 0.981 |
| 50 | 0.18 | 0.0347 | 0.882 |
| 60 | 0.34 | 0.0310 | 0.788 |
| 75 | 0.65 | 0.0251 | 0.638 |
| 84 | 0.97 | 0.0201 | 0.509 |
| 90 | 1.50 | 0.0139 | 0.354 |
| 95 | 2.17 | 0.0087 | 0.222 |

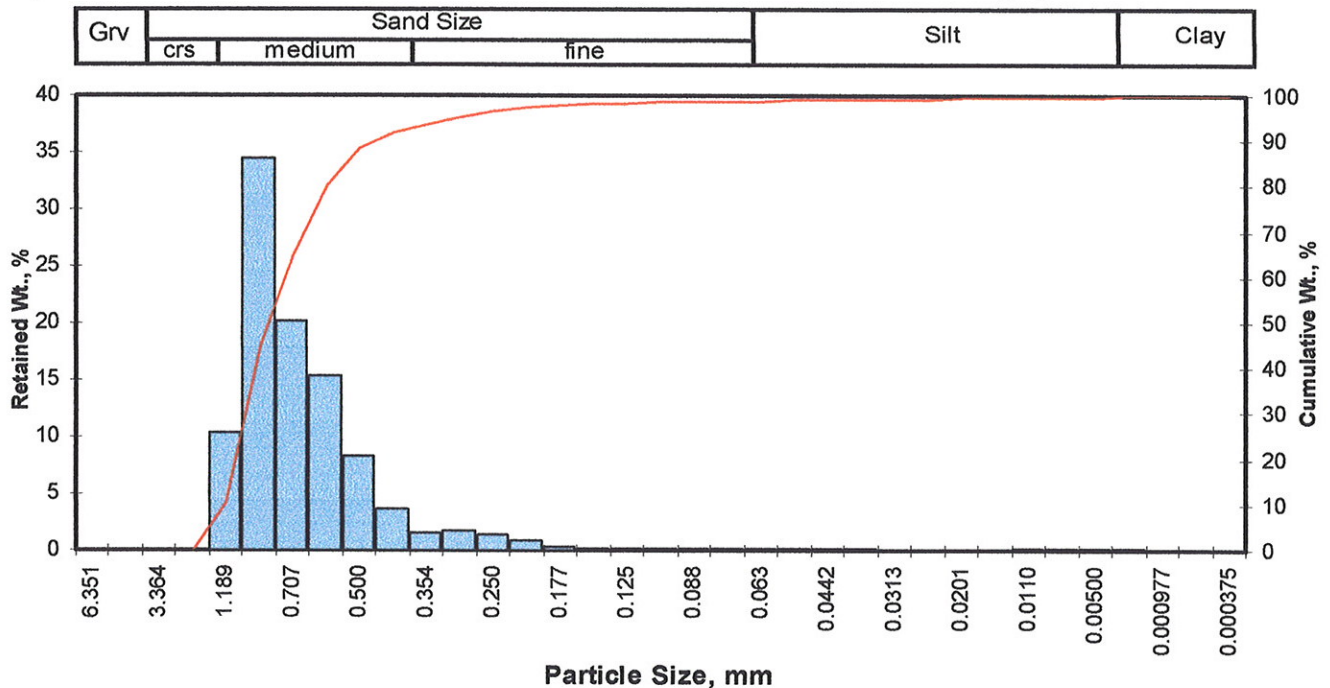
| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 0.18 | 0.18 | 0.18 |
| Median, in. | 0.0347 | 0.0347 | 0.0347 |
| Median, mm | 0.882 | 0.882 | 0.882 |
| Mean, phi | 0.16 | 0.26 | 0.23 |
| Mean, in. | 0.0352 | 0.0329 | 0.0335 |
| Mean, mm | 0.895 | 0.835 | 0.851 |
| Sorting | 1.344 | 0.714 | 0.812 |
| Skewness | 0.972 | 0.110 | 0.218 |
| Kurtosis | 0.210 | 1.102 | 1.443 |

| Grain Size Description | Medium sand |
|------------------------|----------------------------|
| (ASTM-USCS Scale) | (based on Mean from Trask) |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 87.90 |
| Fine Sand | 200 | 10.17 |
| Silt | >0.005 mm | 1.62 |
| Clay | <0.005 mm | 0.31 |
| Total | | 100 |

Client: Groundwater Services, Inc.
Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
Project No: GSI Job No. G-2876

PTS File No: 34379
Sample ID: A1-10 (72-74)
Depth, ft: 72.8



Particle Size, mm

| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 10.30 | 10.30 | 10.30 |
| 0.0331 | 0.841 | 0.25 | 20 | 34.40 | 34.40 | 44.70 |
| 0.0278 | 0.707 | 0.50 | 25 | 20.10 | 20.10 | 64.79 |
| 0.0234 | 0.595 | 0.75 | 30 | 15.30 | 15.30 | 80.09 |
| 0.0197 | 0.500 | 1.00 | 35 | 8.26 | 8.26 | 88.35 |
| 0.0166 | 0.420 | 1.25 | 40 | 3.58 | 3.58 | 91.93 |
| 0.0139 | 0.354 | 1.50 | 45 | 1.58 | 1.58 | 93.51 |
| 0.0117 | 0.297 | 1.75 | 50 | 1.80 | 1.80 | 95.31 |
| 0.0098 | 0.250 | 2.00 | 60 | 1.32 | 1.32 | 96.63 |
| 0.0083 | 0.210 | 2.25 | 70 | 0.85 | 0.85 | 97.48 |
| 0.0070 | 0.177 | 2.50 | 80 | 0.40 | 0.40 | 97.88 |
| 0.0059 | 0.149 | 2.75 | 100 | 0.24 | 0.24 | 98.12 |
| 0.0049 | 0.125 | 3.00 | 120 | 0.21 | 0.21 | 98.33 |
| 0.0041 | 0.105 | 3.25 | 140 | 0.17 | 0.17 | 98.50 |
| 0.0035 | 0.088 | 3.50 | 170 | 0.14 | 0.14 | 98.64 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.12 | 0.12 | 98.76 |
| 0.0025 | 0.063 | 4.00 | 230 | 0.11 | 0.11 | 98.87 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.10 | 0.10 | 98.97 |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.10 | 0.10 | 99.07 |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.09 | 0.09 | 99.15 |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.08 | 0.08 | 99.23 |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.08 | 0.08 | 99.31 |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.07 | 0.07 | 99.39 |
| 0.000615 | 0.0156 | 6.00 | | 0.08 | 0.08 | 99.47 |
| 0.000435 | 0.0110 | 6.50 | | 0.10 | 0.10 | 99.57 |
| 0.000308 | 0.00781 | 7.00 | | 0.10 | 0.09 | 99.66 |
| 0.000197 | 0.00500 | 7.65 | | 0.11 | 0.11 | 99.77 |
| 0.000077 | 0.00195 | 9.00 | | 0.17 | 0.17 | 99.94 |
| 0.000038 | 0.000977 | 10.00 | | 0.06 | 0.06 | 100.00 |
| 0.000019 | 0.000488 | 11.00 | | 0.00 | 0.00 | 100.00 |
| 0.000015 | 0.000375 | 11.38 | | 0.00 | 0.00 | 100.00 |
| TOTALS | | | | 100.00 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -0.64 | 0.0612 | 1.554 |
| 10 | -0.27 | 0.0475 | 1.207 |
| 16 | -0.17 | 0.0442 | 1.123 |
| 25 | -0.04 | 0.0404 | 1.025 |
| 40 | 0.18 | 0.0347 | 0.882 |
| 50 | 0.32 | 0.0316 | 0.803 |
| 60 | 0.44 | 0.0290 | 0.737 |
| 75 | 0.67 | 0.0248 | 0.630 |
| 84 | 0.87 | 0.0216 | 0.548 |
| 90 | 1.12 | 0.0182 | 0.462 |
| 95 | 1.71 | 0.0121 | 0.306 |

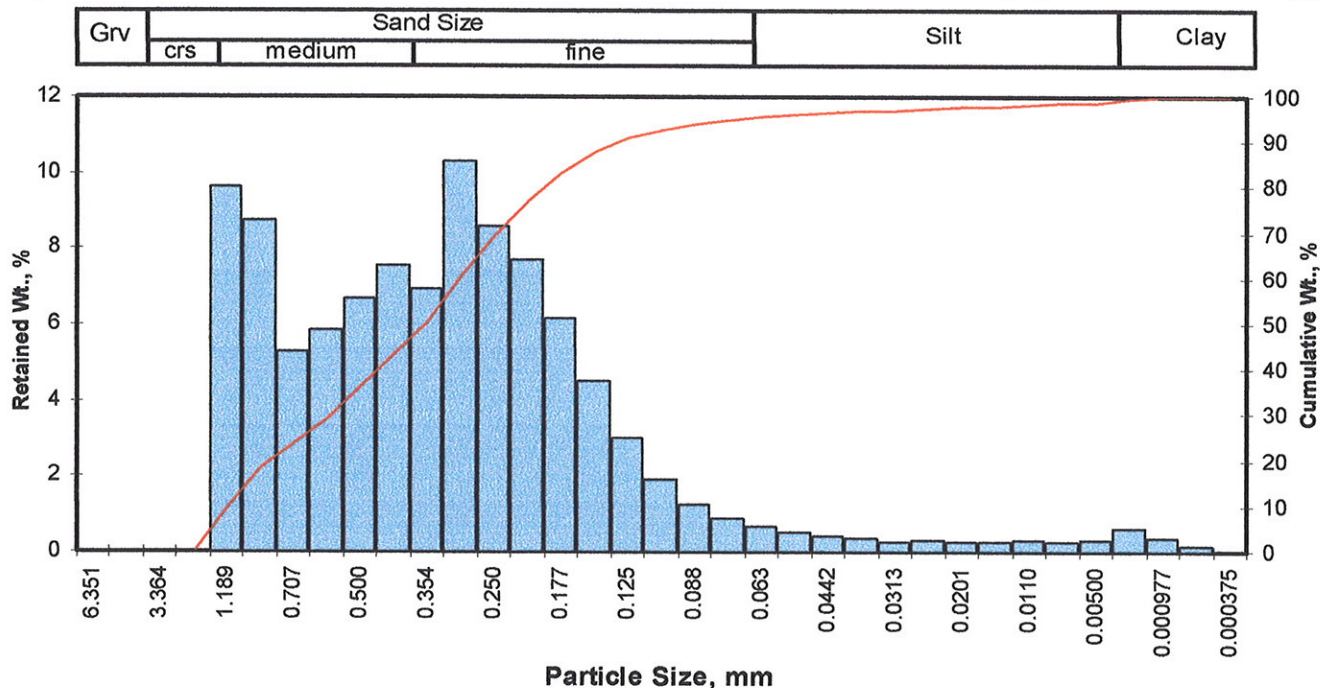
| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 0.32 | 0.32 | 0.32 |
| Median, in. | 0.0316 | 0.0316 | 0.0316 |
| Median, mm | 0.803 | 0.803 | 0.803 |
| Mean, phi | 0.27 | 0.35 | 0.34 |
| Mean, in. | 0.0326 | 0.0309 | 0.0311 |
| Mean, mm | 0.828 | 0.784 | 0.791 |
| Sorting | 1.276 | 0.518 | 0.614 |
| Skewness | 1.001 | 0.067 | 0.127 |
| Kurtosis | 0.265 | 1.262 | 1.366 |

| Grain Size Description | Medium sand |
|------------------------|----------------------------|
| (ASTM-USCS Scale) | (based on Mean from Trask) |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 91.93 |
| Fine Sand | 200 | 6.83 |
| Silt | >0.005 mm | 1.01 |
| Clay | <0.005 mm | 0.23 |
| Total | | 100 |

Client: Groundwater Services, Inc.
Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
Project No: GSI Job No. G-2876

PTS File No: 34379
Sample ID: A1-12 (35-37)
Depth, ft: 36.3



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|---------------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 9.62 | 9.62 | 9.62 |
| 0.0331 | 0.841 | 0.25 | 20 | 8.76 | 8.76 | 18.38 |
| 0.0278 | 0.707 | 0.50 | 25 | 5.26 | 5.26 | 23.63 |
| 0.0234 | 0.595 | 0.75 | 30 | 5.86 | 5.86 | 29.49 |
| 0.0197 | 0.500 | 1.00 | 35 | 6.66 | 6.66 | 36.15 |
| 0.0166 | 0.420 | 1.25 | 40 | 7.55 | 7.55 | 43.70 |
| 0.0139 | 0.354 | 1.50 | 45 | 6.95 | 6.95 | 50.65 |
| 0.0117 | 0.297 | 1.75 | 50 | 10.30 | 10.30 | 60.94 |
| 0.0098 | 0.250 | 2.00 | 60 | 8.60 | 8.60 | 69.54 |
| 0.0083 | 0.210 | 2.25 | 70 | 7.69 | 7.69 | 77.23 |
| 0.0070 | 0.177 | 2.50 | 80 | 6.17 | 6.17 | 83.40 |
| 0.0059 | 0.149 | 2.75 | 100 | 4.51 | 4.51 | 87.91 |
| 0.0049 | 0.125 | 3.00 | 120 | 3.00 | 3.00 | 90.91 |
| 0.0041 | 0.105 | 3.25 | 140 | 1.90 | 1.90 | 92.80 |
| 0.0035 | 0.088 | 3.50 | 170 | 1.22 | 1.22 | 94.02 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.86 | 0.86 | 94.88 |
| 0.0025 | 0.063 | 4.00 | 230 | 0.66 | 0.66 | 95.54 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.54 | 0.54 | 96.08 |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.43 | 0.43 | 96.51 |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.34 | 0.34 | 96.85 |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.28 | 0.28 | 97.13 |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.30 | 0.30 | 97.43 |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.26 | 0.26 | 97.69 |
| 0.000615 | 0.0156 | 6.00 | | 0.26 | 0.26 | 97.95 |
| 0.000435 | 0.0110 | 6.50 | | 0.31 | 0.31 | 98.26 |
| 0.000308 | 0.00781 | 7.00 | | 0.27 | 0.27 | 98.53 |
| 0.000197 | 0.00500 | 7.65 | | 0.33 | 0.33 | 98.86 |
| 0.000077 | 0.00195 | 9.00 | | 0.61 | 0.61 | 99.47 |
| 0.000038 | 0.000977 | 10.00 | | 0.34 | 0.34 | 99.81 |
| 0.000019 | 0.000488 | 11.00 | | 0.17 | 0.17 | 99.98 |
| 0.000015 | 0.000375 | 11.38 | | 0.02 | 0.02 | 100.00 |
| TOTALS | | | | 100.00 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -0.61 | 0.0601 | 1.526 |
| 10 | -0.23 | 0.0461 | 1.171 |
| 16 | 0.11 | 0.0364 | 0.924 |
| 25 | 0.56 | 0.0267 | 0.679 |
| 40 | 1.13 | 0.0180 | 0.458 |
| 50 | 1.48 | 0.0141 | 0.359 |
| 60 | 1.73 | 0.0119 | 0.302 |
| 75 | 2.18 | 0.0087 | 0.221 |
| 84 | 2.53 | 0.0068 | 0.173 |
| 90 | 2.92 | 0.0052 | 0.132 |
| 95 | 3.79 | 0.0028 | 0.072 |

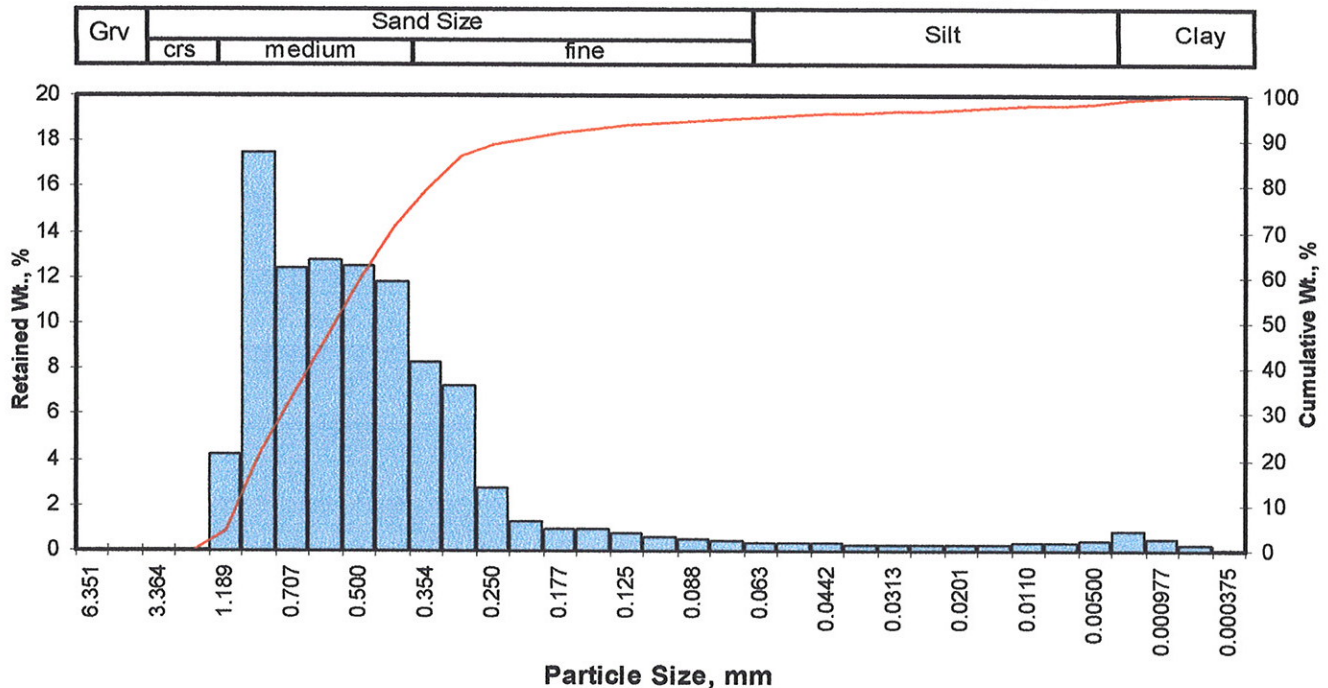
| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 1.48 | 1.48 | 1.48 |
| Median, in. | 0.0141 | 0.0141 | 0.0141 |
| Median, mm | 0.359 | 0.359 | 0.359 |
| Mean, phi | 1.15 | 1.32 | 1.37 |
| Mean, in. | 0.0177 | 0.0157 | 0.0152 |
| Mean, mm | 0.450 | 0.399 | 0.386 |
| Sorting | 1.753 | 1.210 | 1.272 |
| Skewness | 1.078 | -0.126 | -0.037 |
| Kurtosis | 0.220 | 0.821 | 1.115 |

| Grain Size Description | Medium sand |
|------------------------|----------------------------|
| (ASTM-USCS Scale) | (based on Mean from Trask) |

| Description | Retained on Sieve # | Weight Percent |
|--------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 43.70 |
| Fine Sand | 200 | 51.19 |
| Silt | >0.005 mm | 3.98 |
| Clay | <0.005 mm | 1.14 |
| Total | | 100 |

Client: Groundwater Services, Inc.
Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
Project No: GSI Job No. G-2876

PTS File No: 34379
Sample ID: A1-13 (84-86)
Depth, ft: 85.3



Particle Size, mm

| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|---------------|-------------|------------------|-------------|----------------------------|---------------------------------|----------------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 4.22 | 4.23 | 4.23 |
| 0.0331 | 0.841 | 0.25 | 20 | 17.50 | 17.52 | 21.75 |
| 0.0278 | 0.707 | 0.50 | 25 | 12.40 | 12.42 | 34.16 |
| 0.0234 | 0.595 | 0.75 | 30 | 12.70 | 12.72 | 46.88 |
| 0.0197 | 0.500 | 1.00 | 35 | 12.50 | 12.52 | 59.39 |
| 0.0166 | 0.420 | 1.25 | 40 | 11.80 | 11.81 | 71.21 |
| 0.0139 | 0.354 | 1.50 | 45 | 8.23 | 8.24 | 79.45 |
| 0.0117 | 0.297 | 1.75 | 50 | 7.22 | 7.23 | 86.68 |
| 0.0098 | 0.250 | 2.00 | 60 | 2.72 | 2.72 | 89.40 |
| 0.0083 | 0.210 | 2.25 | 70 | 1.30 | 1.30 | 90.70 |
| 0.0070 | 0.177 | 2.50 | 80 | 0.95 | 0.95 | 91.66 |
| 0.0059 | 0.149 | 2.75 | 100 | 0.92 | 0.92 | 92.58 |
| 0.0049 | 0.125 | 3.00 | 120 | 0.77 | 0.77 | 93.35 |
| 0.0041 | 0.105 | 3.25 | 140 | 0.58 | 0.58 | 93.93 |
| 0.0035 | 0.088 | 3.50 | 170 | 0.50 | 0.50 | 94.43 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.44 | 0.44 | 94.87 |
| 0.0025 | 0.063 | 4.00 | 230 | 0.38 | 0.38 | 95.25 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.35 | 0.35 | 95.60 |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.33 | 0.33 | 95.93 |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.27 | 0.27 | 96.20 |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.22 | 0.22 | 96.42 |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.28 | 0.28 | 96.70 |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.29 | 0.29 | 96.99 |
| 0.000615 | 0.0156 | 6.00 | | 0.30 | 0.30 | 97.29 |
| 0.000435 | 0.0110 | 6.50 | | 0.35 | 0.35 | 97.64 |
| 0.000308 | 0.00781 | 7.00 | | 0.32 | 0.32 | 97.96 |
| 0.000197 | 0.00500 | 7.65 | | 0.41 | 0.41 | 98.37 |
| 0.000077 | 0.00195 | 9.00 | | 0.85 | 0.85 | 99.23 |
| 0.000038 | 0.000977 | 10.00 | | 0.49 | 0.49 | 99.72 |
| 0.000019 | 0.000488 | 11.00 | | 0.26 | 0.26 | 99.98 |
| 0.000015 | 0.000375 | 11.38 | | 0.02 | 0.02 | 100.00 |
| TOTALS | | | | 99.90 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|--------------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -0.23 | 0.0461 | 1.171 |
| 10 | -0.09 | 0.0418 | 1.061 |
| 16 | 0.09 | 0.0371 | 0.942 |
| 25 | 0.32 | 0.0316 | 0.804 |
| 40 | 0.61 | 0.0257 | 0.653 |
| 50 | 0.81 | 0.0224 | 0.569 |
| 60 | 1.01 | 0.0195 | 0.496 |
| 75 | 1.36 | 0.0153 | 0.388 |
| 84 | 1.66 | 0.0125 | 0.317 |
| 90 | 2.11 | 0.0091 | 0.231 |
| 95 | 3.84 | 0.0028 | 0.070 |

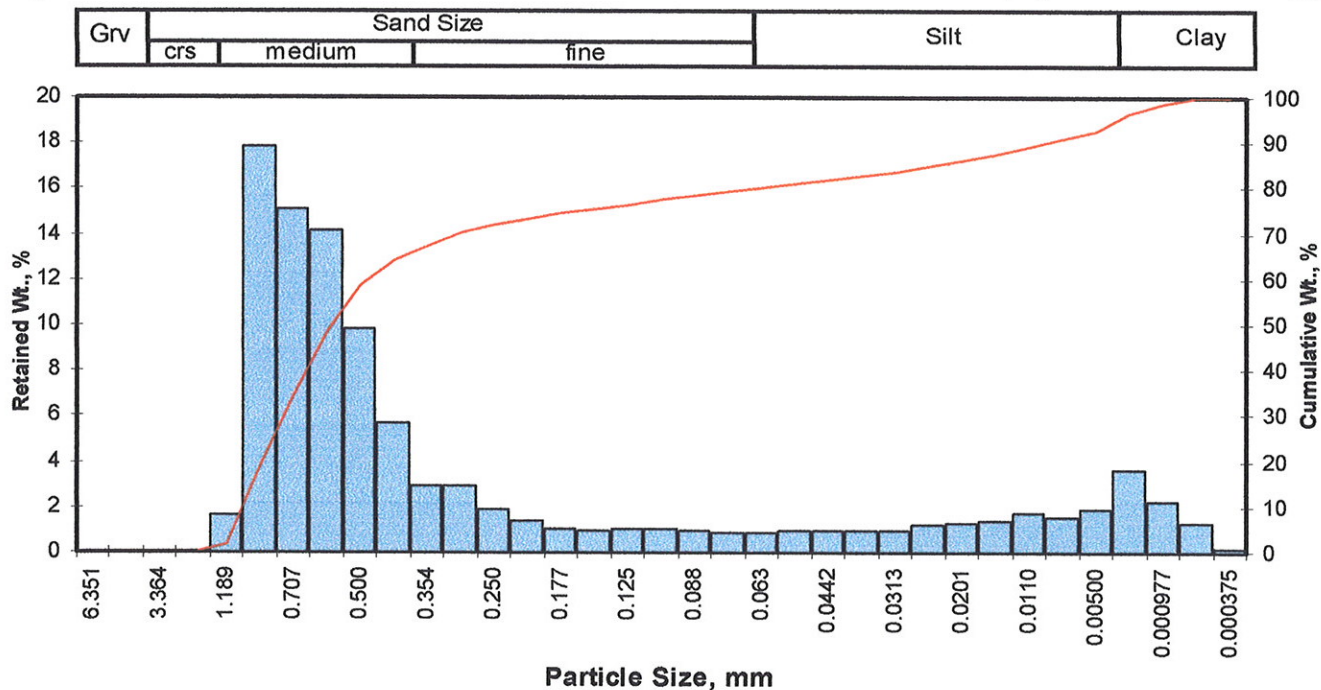
| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 0.81 | 0.81 | 0.81 |
| Median, in. | 0.0224 | 0.0224 | 0.0224 |
| Median, mm | 0.569 | 0.569 | 0.569 |
| Mean, phi | 0.75 | 0.87 | 0.85 |
| Mean, in. | 0.0235 | 0.0215 | 0.0218 |
| Mean, mm | 0.596 | 0.547 | 0.554 |
| Sorting | 1.439 | 0.786 | 1.009 |
| Skewness | 0.981 | 0.076 | 0.282 |
| Kurtosis | 0.250 | 1.586 | 1.587 |

| Grain Size Description (ASTM-USCS Scale) | Medium sand (based on Mean from Trask) |
|---|---|
|---|---|

| Description | Retained on Sieve # | Weight Percent |
|--------------|------------------------|-------------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 71.21 |
| Fine Sand | 200 | 23.66 |
| Silt | >0.005 mm | 3.50 |
| Clay | <0.005 mm | 1.63 |
| Total | | 100 |

Client: Groundwater Services, Inc.
Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
Project No: GSI Job No. G-2876

PTS File No: 34379
Sample ID: A1-15 (85-87)
Depth, ft: 86.3



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|--|-----------|---------------|-------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | | Inches | Millimeters | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 5 | -0.16 | 0.0439 | 1.115 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 | 10 | -0.02 | 0.0398 | 1.011 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 | 16 | 0.15 | 0.0354 | 0.900 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 | 25 | 0.34 | 0.0311 | 0.789 |
| 0.0468 | 1.189 | -0.25 | 16 | 1.67 | 1.67 | 1.67 | 40 | 0.60 | 0.0260 | 0.662 |
| 0.0331 | 0.841 | 0.25 | 20 | 17.80 | 17.80 | 19.47 | 50 | 0.78 | 0.0229 | 0.581 |
| 0.0278 | 0.707 | 0.50 | 25 | 15.10 | 15.10 | 34.58 | 60 | 1.07 | 0.0188 | 0.478 |
| 0.0234 | 0.595 | 0.75 | 30 | 14.10 | 14.10 | 48.68 | 75 | 2.66 | 0.0062 | 0.158 |
| 0.0197 | 0.500 | 1.00 | 35 | 9.83 | 9.83 | 58.51 | 84 | 5.06 | 0.0012 | 0.030 |
| 0.0166 | 0.420 | 1.25 | 40 | 5.72 | 5.72 | 64.23 | 90 | 6.73 | 0.0004 | 0.009 |
| 0.0139 | 0.354 | 1.50 | 45 | 2.94 | 2.94 | 67.17 | 95 | 8.48 | 0.0001 | 0.003 |
| 0.0117 | 0.297 | 1.75 | 50 | 2.91 | 2.91 | 70.08 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 1.90 | 1.90 | 71.98 | | | | |
| 0.0083 | 0.210 | 2.25 | 70 | 1.37 | 1.37 | 73.35 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 1.01 | 1.01 | 74.36 | | | | |
| 0.0059 | 0.149 | 2.75 | 100 | 0.99 | 0.99 | 75.36 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 1.05 | 1.05 | 76.41 | | | | |
| 0.0041 | 0.105 | 3.25 | 140 | 1.01 | 1.01 | 77.42 | | | | |
| 0.0035 | 0.088 | 3.50 | 170 | 0.91 | 0.91 | 78.33 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 0.85 | 0.85 | 79.18 | | | | |
| 0.0025 | 0.063 | 4.00 | 230 | 0.87 | 0.87 | 80.05 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 0.92 | 0.92 | 80.97 | | | | |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.95 | 0.95 | 81.92 | | | | |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.94 | 0.94 | 82.86 | | | | |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.92 | 0.92 | 83.78 | | | | |
| 0.000986 | 0.0250 | 5.32 | 500 | 1.20 | 1.20 | 84.98 | | | | |
| 0.000790 | 0.0201 | 5.64 | 635 | 1.25 | 1.25 | 86.23 | | | | |
| 0.000615 | 0.0156 | 6.00 | | 1.34 | 1.34 | 87.57 | | | | |
| 0.000435 | 0.0110 | 6.50 | | 1.71 | 1.71 | 89.28 | | | | |
| 0.000308 | 0.00781 | 7.00 | | 1.59 | 1.59 | 90.87 | | | | |
| 0.000197 | 0.00500 | 7.65 | | 1.92 | 1.92 | 92.79 | | | | |
| 0.000077 | 0.00195 | 9.00 | | 3.58 | 3.58 | 96.37 | | | | |
| 0.000038 | 0.000977 | 10.00 | | 2.22 | 2.22 | 98.59 | | | | |
| 0.000019 | 0.000488 | 11.00 | | 1.28 | 1.28 | 99.87 | | | | |
| 0.000015 | 0.000375 | 11.38 | | 0.13 | 0.13 | 100.00 | | | | |
| TOTALS | | | | 100.00 | 100.00 | 100.00 | | | | |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 0.78 | 0.78 | 0.78 |
| Median, in. | 0.0229 | 0.0229 | 0.0229 |
| Median, mm | 0.581 | 0.581 | 0.581 |
| Mean, phi | 1.08 | 2.61 | 2.00 |
| Mean, in. | 0.0186 | 0.0065 | 0.0099 |
| Mean, mm | 0.474 | 0.164 | 0.250 |
| Sorting | 2.234 | 2.454 | 2.536 |
| Skewness | 0.608 | 0.743 | 0.763 |
| Kurtosis | 0.315 | 0.760 | 1.527 |

| Grain Size Description | | Medium sand | |
|------------------------|--|----------------------------|--|
| (ASTM-USCS Scale) | | (based on Mean from Trask) | |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 64.23 |
| Fine Sand | 200 | 14.94 |
| Silt | >0.005 mm | 13.61 |
| Clay | <0.005 mm | 7.21 |
| Total | | 100 |

PARTICLE SIZE SUMMARY

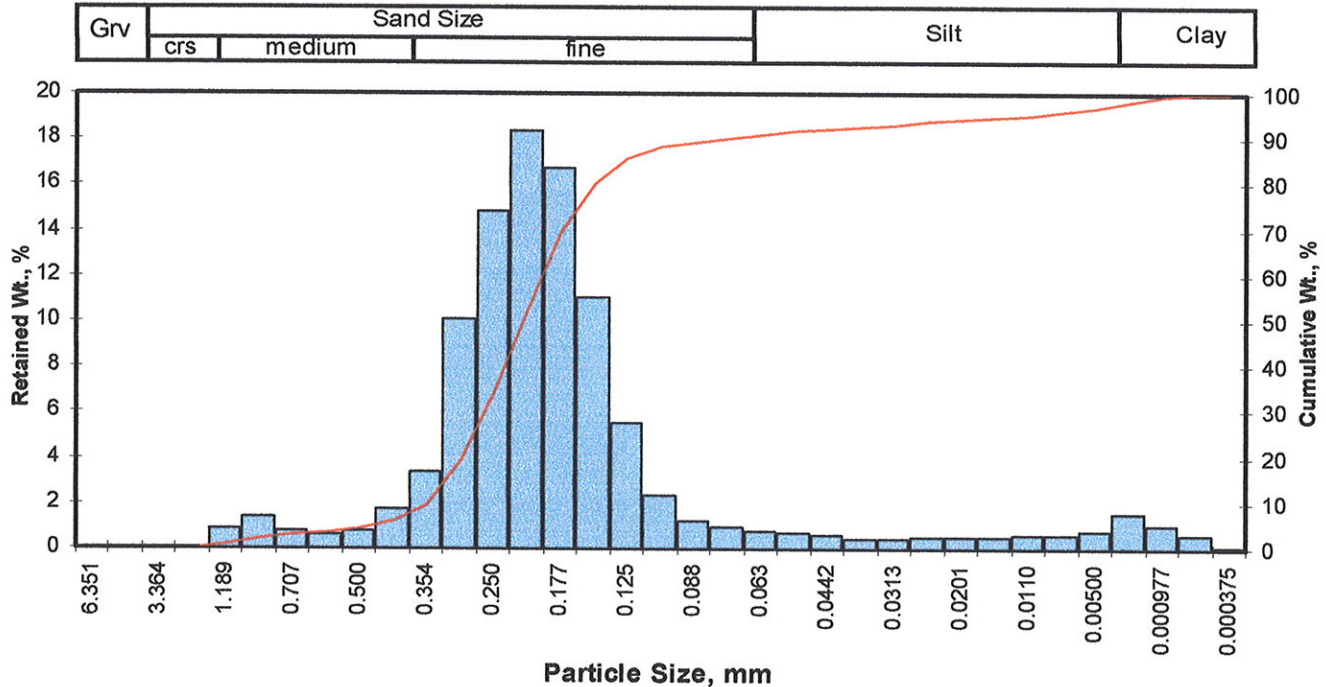
(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: DNAPL Characterization Study, Saugeat Area 1 Sites, Saugeat Illinois
PROJECT NO: GSI Job No. G-2876

| Sample ID | Depth, ft. | Mean Grain Size Description (1) | Median Grain Size mm | Particle Size Distribution, wt. percent | | | | | | Silt & Clay |
|-----------------|------------|---------------------------------|----------------------|---|-----------|--------|-------|-------|------|-------------|
| | | | | Gravel | Sand Size | | | Silt | Clay | |
| | | | | | Coarse | Medium | Fine | | | |
| | | | | | | | | | | |
| A1-07 (85-87) | 85.8 | Fine sand | 0.216 | 0.00 | 0.00 | 6.05 | 84.24 | 6.56 | 3.15 | 9.71 |
| A1-15 (25-27) | 25.8 | Fine sand | 0.293 | 0.00 | 0.00 | 16.93 | 73.22 | 6.83 | 3.02 | 9.85 |
| A1-15 (35-37) | 36.3 | Fine sand | 0.306 | 0.00 | 0.00 | 34.20 | 57.45 | 6.10 | 2.24 | 8.35 |
| A1-03 (25-26.5) | 25.8 | Silt | 0.057 | 0.00 | 0.00 | 0.00 | 36.98 | 53.75 | 9.26 | 63.01 |
| A1-15 (65-67) | 66.3 | Fine sand | 0.326 | 0.00 | 0.00 | 30.14 | 58.51 | 8.25 | 3.11 | 11.36 |
| A1-07 (45-47) | 45.8 | Medium sand | 0.452 | 15.04 | 5.42 | 32.81 | 36.40 | (2) | (2) | 10.33 |
| A1-09 (45-47) | 46.3 | Medium sand | 0.565 | 0.00 | 9.64 | 61.59 | 23.17 | (2) | (2) | 5.60 |
| A1-09 (75-77) | 75.8 | Medium sand | 0.519 | 4.31 | 10.13 | 45.93 | 31.43 | (2) | (2) | 8.19 |
| A1-1 (85-87) | 85.8 | Medium sand | 0.632 | 0.00 | 4.75 | 75.49 | 13.87 | (2) | (2) | 5.89 |
| A1-10 (45-47) | 46.3 | Medium sand | 0.416 | 5.27 | 5.46 | 38.81 | 41.57 | (2) | (2) | 8.89 |
| A1-11 (95-97.5) | 96.3 | Medium sand | 1.142 | 8.62 | 18.51 | 64.41 | 7.97 | (2) | (2) | 0.49 |
| A1-12 (65-67) | 66.3 | Medium sand | 0.571 | 17.42 | 3.27 | 48.49 | 23.71 | (2) | (2) | 7.11 |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: A1-07 (85-87)
 Depth, ft: 85.8



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 0.86 | 0.86 | 0.86 |
| 0.0331 | 0.841 | 0.25 | 20 | 1.38 | 1.38 | 2.24 |
| 0.0278 | 0.707 | 0.50 | 25 | 0.74 | 0.74 | 2.98 |
| 0.0234 | 0.595 | 0.75 | 30 | 0.57 | 0.57 | 3.55 |
| 0.0197 | 0.500 | 1.00 | 35 | 0.75 | 0.75 | 4.30 |
| 0.0166 | 0.420 | 1.25 | 40 | 1.75 | 1.75 | 6.05 |
| 0.0139 | 0.354 | 1.50 | 45 | 3.32 | 3.32 | 9.37 |
| 0.0117 | 0.297 | 1.75 | 50 | 10.10 | 10.10 | 19.47 |
| 0.0098 | 0.250 | 2.00 | 60 | 14.80 | 14.80 | 34.26 |
| 0.0083 | 0.210 | 2.25 | 70 | 18.40 | 18.40 | 52.66 |
| 0.0070 | 0.177 | 2.50 | 80 | 16.70 | 16.70 | 69.35 |
| 0.0059 | 0.149 | 2.75 | 100 | 11.00 | 11.00 | 80.35 |
| 0.0049 | 0.125 | 3.00 | 120 | 5.49 | 5.49 | 85.84 |
| 0.0041 | 0.105 | 3.25 | 140 | 2.34 | 2.34 | 88.18 |
| 0.0035 | 0.088 | 3.50 | 170 | 1.19 | 1.19 | 89.37 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.92 | 0.92 | 90.29 |
| 0.0025 | 0.063 | 4.00 | 230 | 0.81 | 0.81 | 91.10 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.68 | 0.68 | 91.78 |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.58 | 0.58 | 92.36 |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.47 | 0.47 | 92.83 |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.42 | 0.42 | 93.25 |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.53 | 0.53 | 93.78 |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.51 | 0.51 | 94.29 |
| 0.000615 | 0.0156 | 6.00 | | 0.51 | 0.51 | 94.80 |
| 0.000435 | 0.0110 | 6.50 | | 0.64 | 0.64 | 95.44 |
| 0.000308 | 0.00781 | 7.00 | | 0.63 | 0.63 | 96.07 |
| 0.000197 | 0.00500 | 7.65 | | 0.78 | 0.78 | 96.85 |
| 0.000077 | 0.00195 | 9.00 | | 1.52 | 1.52 | 98.37 |
| 0.000038 | 0.000977 | 10.00 | | 1.00 | 1.00 | 99.37 |
| 0.000019 | 0.000488 | 11.00 | | 0.58 | 0.58 | 99.95 |
| 0.000015 | 0.000375 | 11.38 | | 0.06 | 0.05 | 100.00 |
| TOTALS | | | | 100.00 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | 1.10 | 0.0184 | 0.466 |
| 10 | 1.52 | 0.0138 | 0.350 |
| 16 | 1.66 | 0.0124 | 0.316 |
| 25 | 1.84 | 0.0110 | 0.279 |
| 40 | 2.08 | 0.0093 | 0.237 |
| 50 | 2.21 | 0.0085 | 0.216 |
| 60 | 2.36 | 0.0077 | 0.195 |
| 75 | 2.63 | 0.0064 | 0.162 |
| 84 | 2.92 | 0.0052 | 0.132 |
| 90 | 3.67 | 0.0031 | 0.078 |
| 95 | 6.16 | 0.0006 | 0.014 |

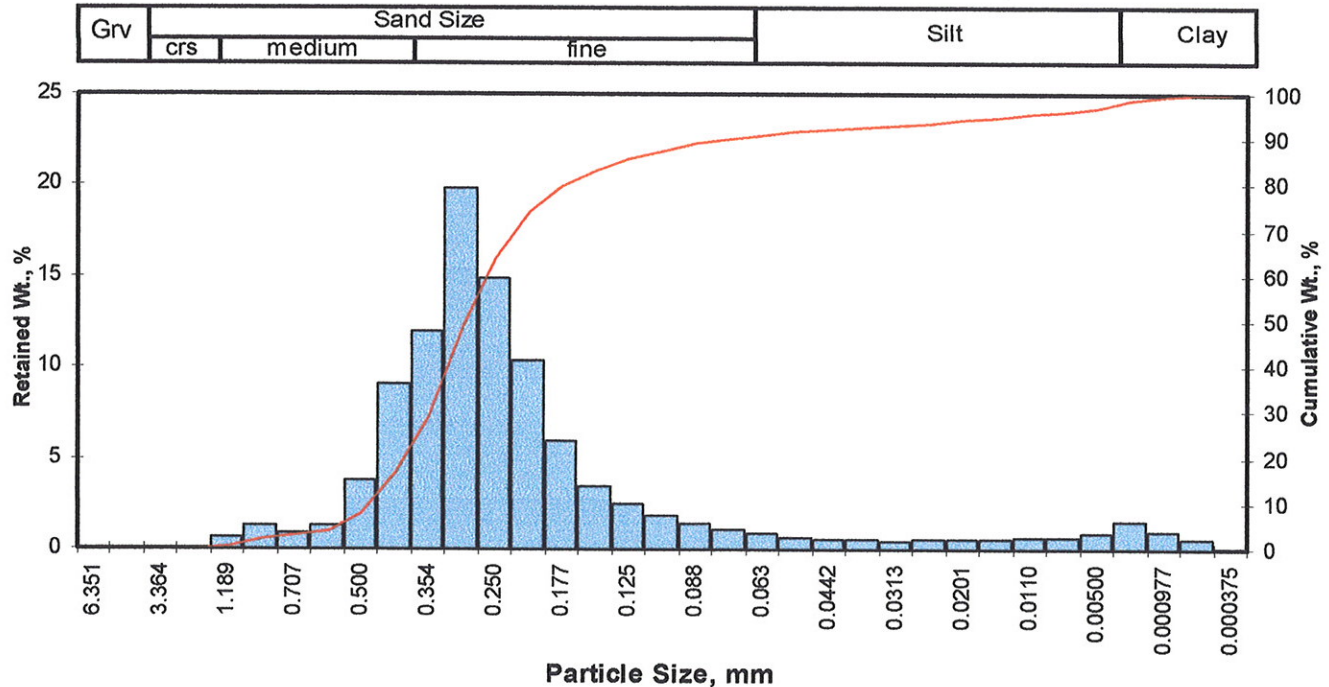
| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 2.21 | 2.21 | 2.21 |
| Median, in. | 0.0085 | 0.0085 | 0.0085 |
| Median, mm | 0.216 | 0.216 | 0.216 |
| Mean, phi | 2.18 | 2.29 | 2.26 |
| Mean, in. | 0.0087 | 0.0080 | 0.0082 |
| Mean, mm | 0.220 | 0.204 | 0.208 |
| Sorting | 1.313 | 0.626 | 1.080 |
| Skewness | 0.985 | 0.122 | 0.341 |
| Kurtosis | 0.215 | 3.041 | 2.642 |

| Grain Size Description | Fine sand |
|------------------------|----------------------------|
| (ASTM-USCS Scale) | (based on Mean from Trask) |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 6.05 |
| Fine Sand | 200 | 84.24 |
| Silt | >0.005 mm | 6.56 |
| Clay | <0.005 mm | 3.15 |
| Total | | 100 |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: A1-15 (25-27)
 Depth, ft: 25.8



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 0.64 | 0.64 | 0.64 |
| 0.0331 | 0.841 | 0.25 | 20 | 1.33 | 1.33 | 1.97 |
| 0.0278 | 0.707 | 0.50 | 25 | 0.85 | 0.85 | 2.82 |
| 0.0234 | 0.595 | 0.75 | 30 | 1.27 | 1.27 | 4.09 |
| 0.0197 | 0.500 | 1.00 | 35 | 3.78 | 3.78 | 7.87 |
| 0.0166 | 0.420 | 1.25 | 40 | 9.06 | 9.06 | 16.93 |
| 0.0139 | 0.354 | 1.50 | 45 | 12.00 | 12.00 | 28.94 |
| 0.0117 | 0.297 | 1.75 | 50 | 19.80 | 19.80 | 48.74 |
| 0.0098 | 0.250 | 2.00 | 60 | 14.90 | 14.90 | 63.64 |
| 0.0083 | 0.210 | 2.25 | 70 | 10.30 | 10.30 | 73.95 |
| 0.0070 | 0.177 | 2.50 | 80 | 5.89 | 5.89 | 79.84 |
| 0.0059 | 0.149 | 2.75 | 100 | 3.46 | 3.46 | 83.30 |
| 0.0049 | 0.125 | 3.00 | 120 | 2.46 | 2.46 | 85.76 |
| 0.0041 | 0.105 | 3.25 | 140 | 1.86 | 1.86 | 87.62 |
| 0.0035 | 0.088 | 3.50 | 170 | 1.42 | 1.42 | 89.04 |
| 0.0029 | 0.074 | 3.75 | 200 | 1.11 | 1.11 | 90.15 |
| 0.0025 | 0.063 | 4.00 | 230 | 0.82 | 0.82 | 90.97 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.64 | 0.64 | 91.61 |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.58 | 0.58 | 92.19 |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.50 | 0.50 | 92.69 |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.43 | 0.43 | 93.12 |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.55 | 0.55 | 93.67 |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.56 | 0.56 | 94.23 |
| 0.000615 | 0.0156 | 6.00 | | 0.55 | 0.55 | 94.78 |
| 0.000435 | 0.0110 | 6.50 | | 0.70 | 0.70 | 95.48 |
| 0.000308 | 0.00781 | 7.00 | | 0.68 | 0.68 | 96.16 |
| 0.000197 | 0.00500 | 7.65 | | 0.82 | 0.82 | 96.98 |
| 0.000077 | 0.00195 | 9.00 | | 1.52 | 1.52 | 98.50 |
| 0.000038 | 0.000977 | 10.00 | | 0.93 | 0.93 | 99.43 |
| 0.000019 | 0.000488 | 11.00 | | 0.52 | 0.52 | 99.95 |
| 0.000015 | 0.000375 | 11.38 | | 0.05 | 0.05 | 100.00 |
| TOTALS | | | | 100.00 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | 0.81 | 0.0225 | 0.570 |
| 10 | 1.06 | 0.0189 | 0.480 |
| 16 | 1.22 | 0.0169 | 0.428 |
| 25 | 1.42 | 0.0147 | 0.374 |
| 40 | 1.64 | 0.0126 | 0.321 |
| 50 | 1.77 | 0.0115 | 0.293 |
| 60 | 1.94 | 0.0103 | 0.261 |
| 75 | 2.29 | 0.0080 | 0.204 |
| 84 | 2.82 | 0.0056 | 0.141 |
| 90 | 3.72 | 0.0030 | 0.076 |
| 95 | 6.16 | 0.0006 | 0.014 |

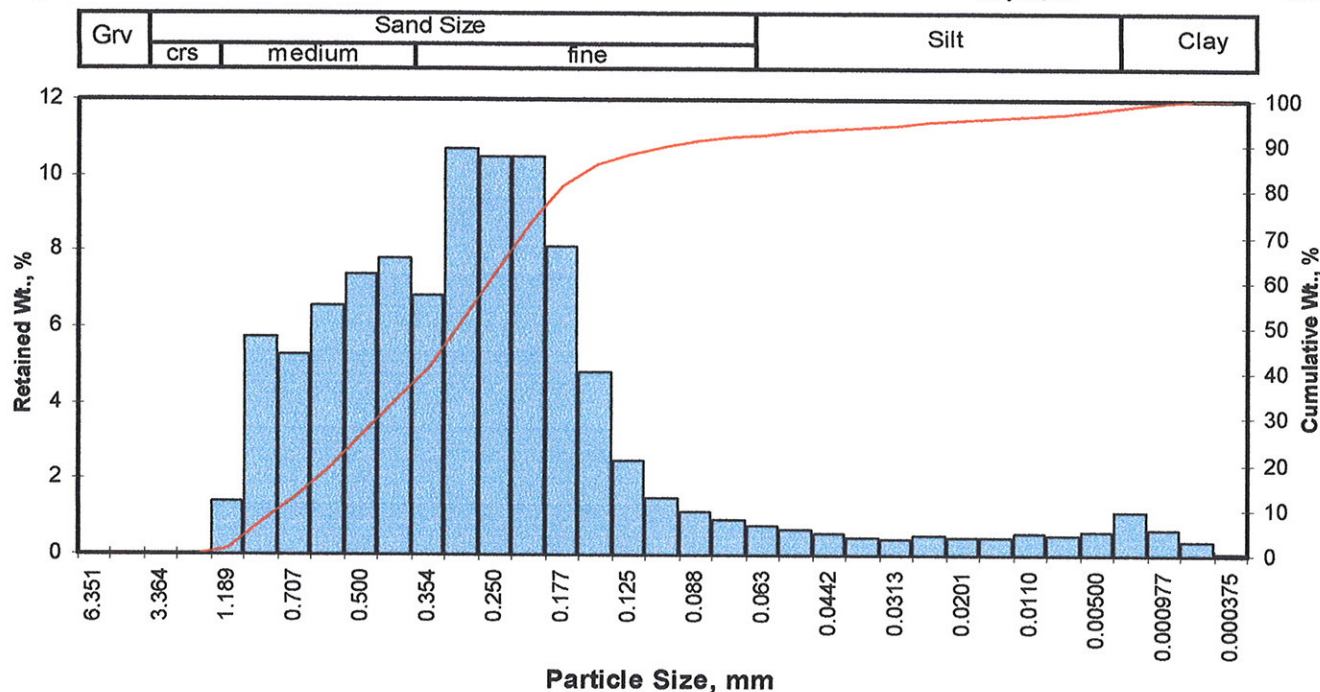
| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 1.77 | 1.77 | 1.77 |
| Median, in. | 0.0115 | 0.0115 | 0.0115 |
| Median, mm | 0.293 | 0.293 | 0.293 |
| Mean, phi | 1.79 | 2.02 | 1.94 |
| Mean, in. | 0.0114 | 0.0097 | 0.0103 |
| Mean, mm | 0.289 | 0.246 | 0.261 |
| Sorting | 1.355 | 0.799 | 1.209 |
| Skewness | 0.943 | 0.315 | 0.478 |
| Kurtosis | 0.211 | 2.348 | 2.500 |

| Grain Size Description | Fine sand |
|------------------------|----------------------------|
| (ASTM-USCS Scale) | (based on Mean from Trask) |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 16.93 |
| Fine Sand | 200 | 73.22 |
| Silt | >0.005 mm | 6.83 |
| Clay | <0.005 mm | 3.02 |
| Total | | 100 |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: A1-15 (35-37)
 Depth, ft: 36.3



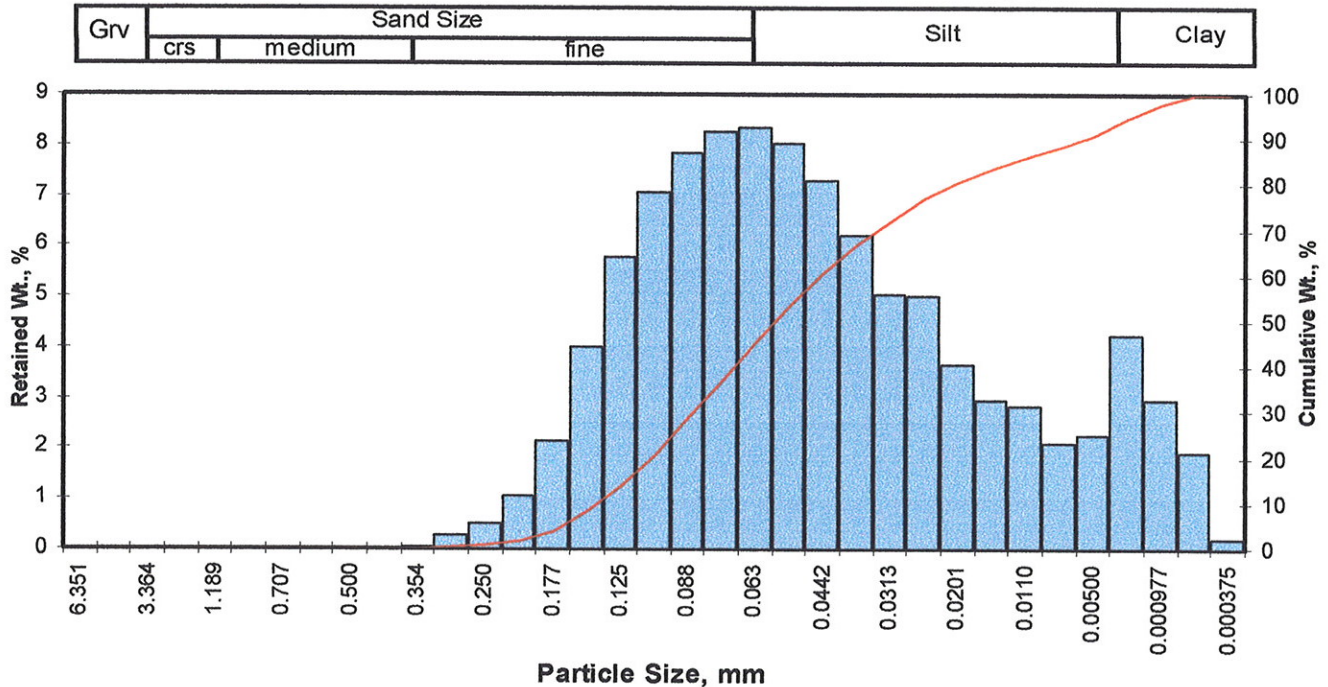
| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|--|-------------|---------------|-------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | Inches | Millimeters | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 5 | 0.06 | 0.0377 | 0.957 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 | 10 | 0.38 | 0.0302 | 0.766 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 | 16 | 0.64 | 0.0253 | 0.644 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 | 25 | 0.95 | 0.0203 | 0.517 |
| 0.0468 | 1.189 | -0.25 | 16 | 1.42 | 1.42 | 1.42 | 40 | 1.46 | 0.0143 | 0.363 |
| 0.0331 | 0.841 | 0.25 | 20 | 5.73 | 5.73 | 7.14 | 50 | 1.71 | 0.0120 | 0.306 |
| 0.0278 | 0.707 | 0.50 | 25 | 5.30 | 5.30 | 12.44 | 60 | 1.95 | 0.0102 | 0.259 |
| 0.0234 | 0.595 | 0.75 | 30 | 6.57 | 6.56 | 19.00 | 75 | 2.32 | 0.0079 | 0.200 |
| 0.0197 | 0.500 | 1.00 | 35 | 7.41 | 7.40 | 26.41 | 84 | 2.67 | 0.0062 | 0.158 |
| 0.0166 | 0.420 | 1.25 | 40 | 7.80 | 7.79 | 34.20 | 90 | 3.33 | 0.0039 | 0.099 |
| 0.0139 | 0.354 | 1.50 | 45 | 6.83 | 6.82 | 41.02 | 95 | 5.27 | 0.0010 | 0.026 |
| 0.0117 | 0.297 | 1.75 | 50 | 10.70 | 10.69 | 51.72 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 10.50 | 10.49 | 62.21 | | | | |
| 0.0083 | 0.210 | 2.25 | 70 | 10.50 | 10.49 | 72.70 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 8.14 | 8.13 | 80.83 | | | | |
| 0.0059 | 0.149 | 2.75 | 100 | 4.80 | 4.80 | 85.63 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 2.49 | 2.49 | 88.11 | | | | |
| 0.0041 | 0.105 | 3.25 | 140 | 1.51 | 1.51 | 89.62 | | | | |
| 0.0035 | 0.088 | 3.50 | 170 | 1.12 | 1.12 | 90.74 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 0.91 | 0.91 | 91.65 | | | | |
| 0.0025 | 0.063 | 4.00 | 230 | 0.79 | 0.79 | 92.44 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 0.68 | 0.68 | 93.12 | | | | |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.56 | 0.56 | 93.68 | | | | |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.47 | 0.47 | 94.15 | | | | |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.42 | 0.42 | 94.57 | | | | |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.52 | 0.52 | 95.09 | | | | |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.48 | 0.48 | 95.57 | | | | |
| 0.000615 | 0.0156 | 6.00 | | 0.47 | 0.47 | 96.04 | | | | |
| 0.000435 | 0.0110 | 6.50 | | 0.58 | 0.58 | 96.62 | | | | |
| 0.000308 | 0.00781 | 7.00 | | 0.53 | 0.53 | 97.15 | | | | |
| 0.000197 | 0.00500 | 7.65 | | 0.61 | 0.61 | 97.76 | | | | |
| 0.000077 | 0.00195 | 9.00 | | 1.14 | 1.14 | 98.89 | | | | |
| 0.000038 | 0.000977 | 10.00 | | 0.69 | 0.69 | 99.58 | | | | |
| 0.000019 | 0.000488 | 11.00 | | 0.38 | 0.38 | 99.96 | | | | |
| 0.000015 | 0.000375 | 11.38 | | 0.04 | 0.04 | 100.00 | | | | |
| TOTALS | | | | 100.10 | 100.00 | 100.00 | | | | |

| Measure | Trask | Inman | Folk-Ward |
|--|--------|--------------------------------------|-----------|
| Median, phi | 1.71 | 1.71 | 1.71 |
| Median, in. | 0.0120 | 0.0120 | 0.0120 |
| Median, mm | 0.306 | 0.306 | 0.306 |
| Mean, phi | 1.48 | 1.65 | 1.67 |
| Mean, in. | 0.0141 | 0.0125 | 0.0124 |
| Mean, mm | 0.358 | 0.319 | 0.314 |
| Sorting | 1.607 | 1.015 | 1.296 |
| Skewness | 1.052 | -0.059 | 0.154 |
| Kurtosis | 0.237 | 1.563 | 1.558 |
| Grain Size Description (ASTM-USCS Scale) | | Fine sand (based on Mean from Trask) | |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 34.20 |
| Fine Sand | 200 | 57.45 |
| Silt | >0.005 mm | 6.10 |
| Clay | <0.005 mm | 2.24 |
| Total | | 100 |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: A1-03 (25-26.5)
 Depth, ft: 25.8



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 0.00 | 0.00 | 0.00 |
| 0.0331 | 0.841 | 0.25 | 20 | 0.00 | 0.00 | 0.00 |
| 0.0278 | 0.707 | 0.50 | 25 | 0.00 | 0.00 | 0.00 |
| 0.0234 | 0.595 | 0.75 | 30 | 0.00 | 0.00 | 0.00 |
| 0.0197 | 0.500 | 1.00 | 35 | 0.00 | 0.00 | 0.00 |
| 0.0166 | 0.420 | 1.25 | 40 | 0.00 | 0.00 | 0.00 |
| 0.0139 | 0.354 | 1.50 | 45 | 0.05 | 0.05 | 0.05 |
| 0.0117 | 0.297 | 1.75 | 50 | 0.27 | 0.27 | 0.32 |
| 0.0098 | 0.250 | 2.00 | 60 | 0.50 | 0.50 | 0.82 |
| 0.0083 | 0.210 | 2.25 | 70 | 1.04 | 1.04 | 1.86 |
| 0.0070 | 0.177 | 2.50 | 80 | 2.15 | 2.15 | 4.01 |
| 0.0059 | 0.149 | 2.75 | 100 | 4.01 | 4.01 | 8.02 |
| 0.0049 | 0.125 | 3.00 | 120 | 5.77 | 5.77 | 13.79 |
| 0.0041 | 0.105 | 3.25 | 140 | 7.08 | 7.08 | 20.87 |
| 0.0035 | 0.088 | 3.50 | 170 | 7.84 | 7.84 | 28.71 |
| 0.0029 | 0.074 | 3.75 | 200 | 8.28 | 8.28 | 36.99 |
| 0.0025 | 0.063 | 4.00 | 230 | 8.36 | 8.36 | 45.35 |
| 0.0021 | 0.053 | 4.25 | 270 | 8.05 | 8.05 | 53.40 |
| 0.00174 | 0.0442 | 4.50 | 325 | 7.29 | 7.29 | 60.68 |
| 0.00146 | 0.0372 | 4.75 | 400 | 6.22 | 6.22 | 66.90 |
| 0.00123 | 0.0313 | 5.00 | 450 | 5.06 | 5.06 | 71.96 |
| 0.000986 | 0.0250 | 5.32 | 500 | 5.01 | 5.01 | 76.97 |
| 0.000790 | 0.0201 | 5.64 | 635 | 3.66 | 3.66 | 80.63 |
| 0.000615 | 0.0156 | 6.00 | | 2.95 | 2.95 | 83.58 |
| 0.000435 | 0.0110 | 6.50 | | 2.82 | 2.82 | 86.40 |
| 0.000308 | 0.00781 | 7.00 | | 2.09 | 2.09 | 88.49 |
| 0.000197 | 0.00500 | 7.65 | | 2.25 | 2.25 | 90.74 |
| 0.000077 | 0.00195 | 9.00 | | 4.24 | 4.24 | 94.98 |
| 0.000038 | 0.000977 | 10.00 | | 2.93 | 2.93 | 97.91 |
| 0.000019 | 0.000488 | 11.00 | | 1.89 | 1.89 | 99.80 |
| 0.000015 | 0.000375 | 11.38 | | 0.20 | 0.20 | 100.00 |
| TOTALS | | | | 100.00 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | 2.56 | 0.0067 | 0.169 |
| 10 | 2.84 | 0.0055 | 0.140 |
| 16 | 3.08 | 0.0047 | 0.118 |
| 25 | 3.38 | 0.0038 | 0.096 |
| 40 | 3.84 | 0.0027 | 0.070 |
| 50 | 4.14 | 0.0022 | 0.057 |
| 60 | 4.48 | 0.0018 | 0.045 |
| 75 | 5.19 | 0.0011 | 0.027 |
| 84 | 6.07 | 0.0006 | 0.015 |
| 90 | 7.43 | 0.0002 | 0.006 |
| 95 | 9.01 | 0.0001 | 0.002 |

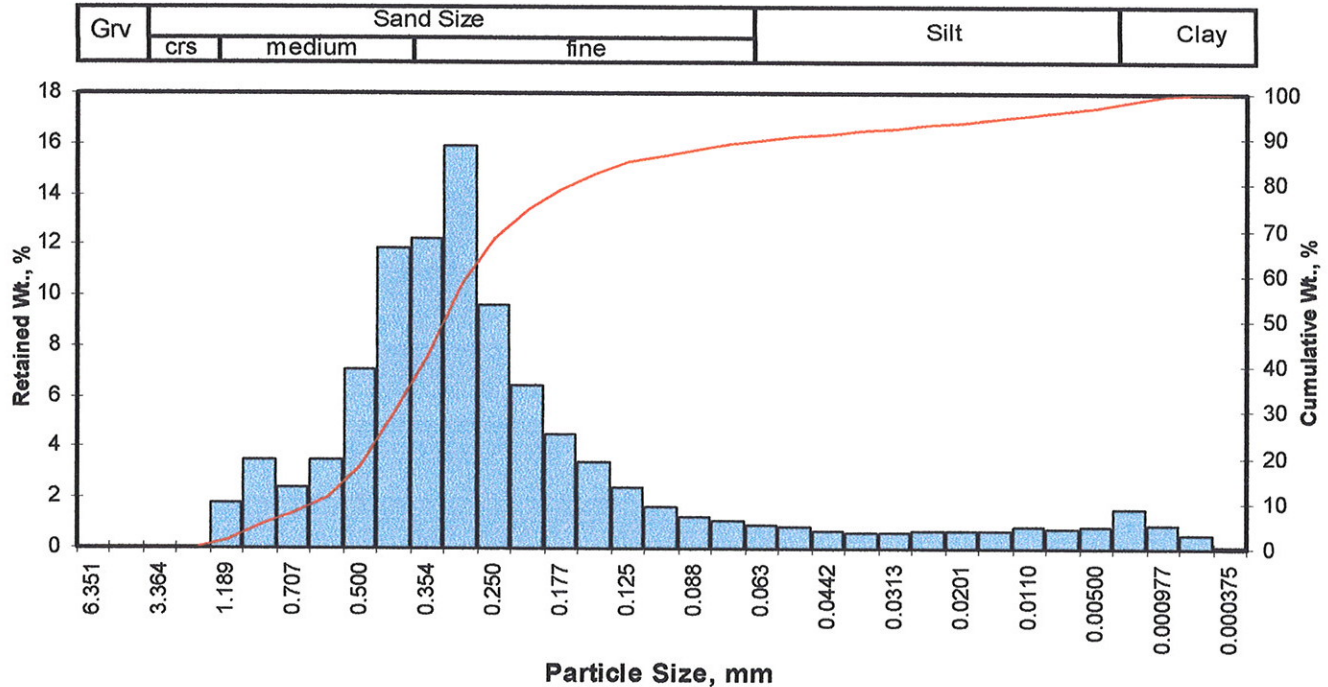
| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 4.14 | 4.14 | 4.14 |
| Median, in. | 0.0022 | 0.0022 | 0.0022 |
| Median, mm | 0.057 | 0.057 | 0.057 |
| Mean, phi | 4.02 | 4.58 | 4.43 |
| Mean, in. | 0.0024 | 0.0017 | 0.0018 |
| Mean, mm | 0.062 | 0.042 | 0.046 |
| Sorting | 1.874 | 1.498 | 1.726 |
| Skewness | 0.905 | 0.288 | 0.398 |
| Kurtosis | 0.256 | 1.151 | 1.458 |

| Grain Size Description | Silt |
|------------------------|----------------------------|
| (ASTM-USCS Scale) | (based on Mean from Trask) |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 0.00 |
| Fine Sand | 200 | 36.98 |
| Silt | >0.005 mm | 53.75 |
| Clay | <0.005 mm | 9.26 |
| Total | | 100 |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: A1-15 (65-67)
 Depth, ft: 66.3



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 1.76 | 1.76 | 1.76 |
| 0.0331 | 0.841 | 0.25 | 20 | 3.52 | 3.52 | 5.28 |
| 0.0278 | 0.707 | 0.50 | 25 | 2.41 | 2.41 | 7.69 |
| 0.0234 | 0.595 | 0.75 | 30 | 3.53 | 3.53 | 11.22 |
| 0.0197 | 0.500 | 1.00 | 35 | 7.03 | 7.03 | 18.24 |
| 0.0166 | 0.420 | 1.25 | 40 | 11.90 | 11.90 | 30.14 |
| 0.0139 | 0.354 | 1.50 | 45 | 12.30 | 12.30 | 42.43 |
| 0.0117 | 0.297 | 1.75 | 50 | 15.90 | 15.89 | 58.33 |
| 0.0098 | 0.250 | 2.00 | 60 | 9.62 | 9.62 | 67.94 |
| 0.0083 | 0.210 | 2.25 | 70 | 6.44 | 6.44 | 74.38 |
| 0.0070 | 0.177 | 2.50 | 80 | 4.54 | 4.54 | 78.92 |
| 0.0059 | 0.149 | 2.75 | 100 | 3.38 | 3.38 | 82.30 |
| 0.0049 | 0.125 | 3.00 | 120 | 2.41 | 2.41 | 84.71 |
| 0.0041 | 0.105 | 3.25 | 140 | 1.63 | 1.63 | 86.34 |
| 0.0035 | 0.088 | 3.50 | 170 | 1.22 | 1.22 | 87.55 |
| 0.0029 | 0.074 | 3.75 | 200 | 1.09 | 1.09 | 88.64 |
| 0.0025 | 0.063 | 4.00 | 230 | 0.96 | 0.96 | 89.60 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.82 | 0.82 | 90.42 |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.71 | 0.71 | 91.13 |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.64 | 0.64 | 91.77 |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.59 | 0.59 | 92.36 |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.72 | 0.72 | 93.08 |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.66 | 0.66 | 93.74 |
| 0.000615 | 0.0156 | 6.00 | | 0.66 | 0.66 | 94.40 |
| 0.000435 | 0.0110 | 6.50 | | 0.83 | 0.83 | 95.23 |
| 0.000308 | 0.00781 | 7.00 | | 0.77 | 0.77 | 96.00 |
| 0.000197 | 0.00500 | 7.65 | | 0.89 | 0.89 | 96.89 |
| 0.000077 | 0.00195 | 9.00 | | 1.58 | 1.58 | 98.47 |
| 0.000038 | 0.000977 | 10.00 | | 0.95 | 0.95 | 99.42 |
| 0.000019 | 0.000488 | 11.00 | | 0.53 | 0.53 | 99.95 |
| 0.000015 | 0.000375 | 11.38 | | 0.05 | 0.05 | 100.00 |
| TOTALS | | | | 100.00 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | 0.21 | 0.0340 | 0.864 |
| 10 | 0.66 | 0.0248 | 0.631 |
| 16 | 0.92 | 0.0208 | 0.528 |
| 25 | 1.14 | 0.0178 | 0.453 |
| 40 | 1.45 | 0.0144 | 0.366 |
| 50 | 1.62 | 0.0128 | 0.326 |
| 60 | 1.79 | 0.0114 | 0.288 |
| 75 | 2.28 | 0.0081 | 0.205 |
| 84 | 2.93 | 0.0052 | 0.132 |
| 90 | 4.12 | 0.0023 | 0.057 |
| 95 | 6.36 | 0.0005 | 0.012 |

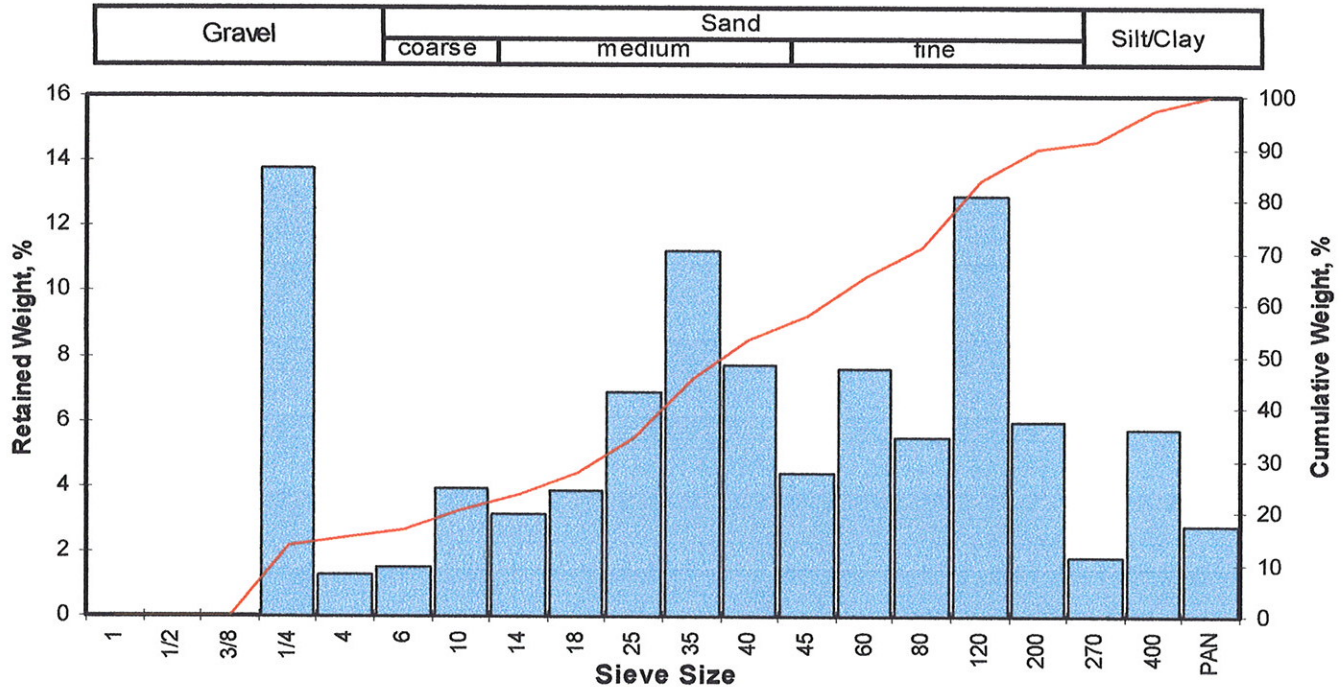
| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 1.62 | 1.62 | 1.62 |
| Median, in. | 0.0128 | 0.0128 | 0.0128 |
| Median, mm | 0.326 | 0.326 | 0.326 |
| Mean, phi | 1.60 | 1.92 | 1.82 |
| Mean, in. | 0.0130 | 0.0104 | 0.0111 |
| Mean, mm | 0.329 | 0.264 | 0.283 |
| Sorting | 1.486 | 1.003 | 1.433 |
| Skewness | 0.937 | 0.303 | 0.423 |
| Kurtosis | 0.216 | 2.065 | 2.207 |

| Grain Size Description (ASTM-USCS Scale) | Fine sand (based on Mean from Trask) |
|--|--------------------------------------|
|--|--------------------------------------|

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 30.14 |
| Fine Sand | 200 | 58.51 |
| Silt | >0.005 mm | 8.25 |
| Clay | <0.005 mm | 3.11 |
| Total | | 100 |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: A1-07 (45-47)
 Depth, ft: 45.8



| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent |
|---------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 2.92 | 13.77 | 13.77 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.27 | 1.27 | 15.04 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.32 | 1.51 | 16.55 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.83 | 3.91 | 20.46 |
| 0.0557 | 1.414 | -0.50 | 14 | 0.66 | 3.11 | 23.57 |
| 0.0394 | 1.000 | 0.00 | 18 | 0.82 | 3.87 | 27.44 |
| 0.0278 | 0.707 | 0.50 | 25 | 1.46 | 6.88 | 34.32 |
| 0.0197 | 0.500 | 1.00 | 35 | 2.38 | 11.22 | 45.54 |
| 0.0166 | 0.420 | 1.25 | 40 | 1.64 | 7.73 | 53.28 |
| 0.0139 | 0.354 | 1.50 | 45 | 0.93 | 4.38 | 57.66 |
| 0.0098 | 0.250 | 2.00 | 60 | 1.61 | 7.59 | 65.25 |
| 0.0070 | 0.177 | 2.50 | 80 | 1.17 | 5.52 | 70.77 |
| 0.0049 | 0.125 | 3.00 | 120 | 2.74 | 12.92 | 83.69 |
| 0.0029 | 0.074 | 3.75 | 200 | 1.27 | 5.99 | 89.67 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.38 | 1.79 | 91.47 |
| 0.0015 | 0.037 | 4.75 | 400 | 1.22 | 5.75 | 97.22 |
| PAN | | | | 0.59 | 2.78 | 100.00 |
| TOTALS | | | | 21.21 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -3.04 | 0.3231 | 8.208 |
| 10 | -2.83 | 0.2792 | 7.091 |
| 16 | -1.93 | 0.1502 | 3.816 |
| 25 | -0.32 | 0.0490 | 1.244 |
| 40 | 0.75 | 0.0234 | 0.593 |
| 50 | 1.14 | 0.0178 | 0.452 |
| 60 | 1.65 | 0.0125 | 0.318 |
| 75 | 2.66 | 0.0062 | 0.158 |
| 84 | 3.04 | 0.0048 | 0.122 |
| 90 | 3.84 | 0.0027 | 0.070 |
| 95 | 4.56 | 0.0017 | 0.042 |

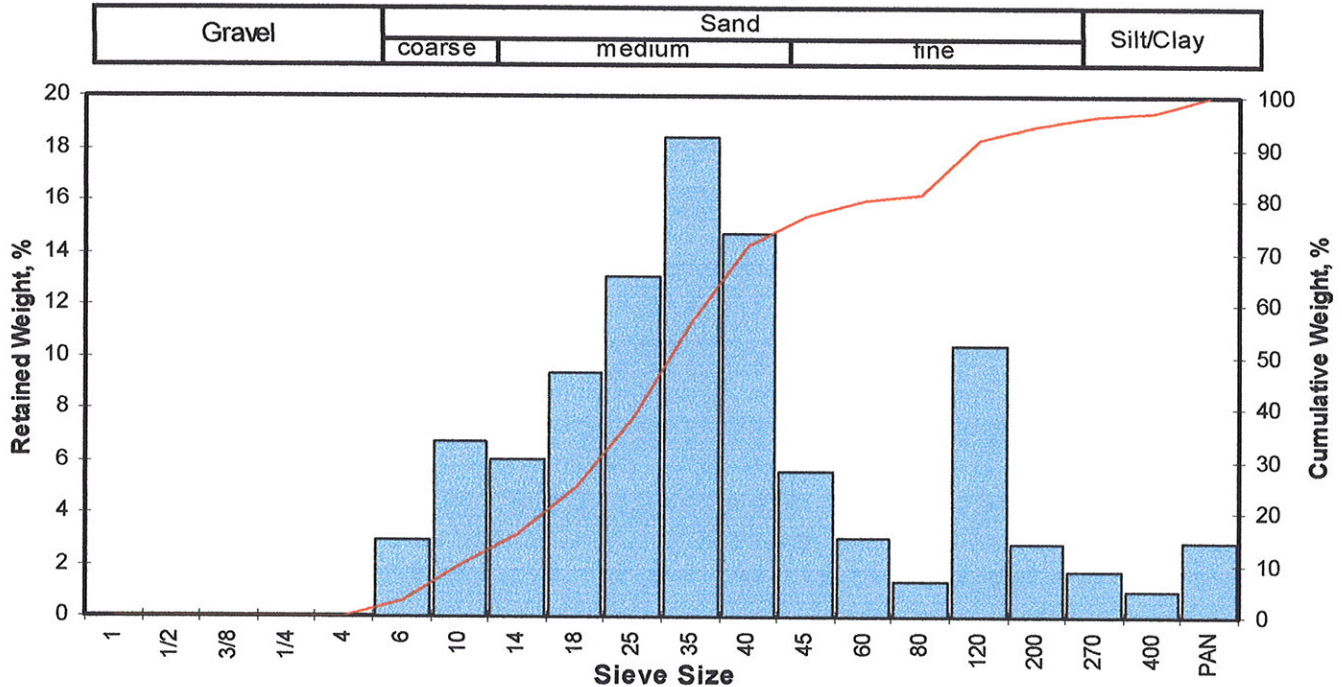
| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 1.14 | 1.14 | 1.14 |
| Median, in. | 0.0178 | 0.0178 | 0.0178 |
| Median, mm | 0.452 | 0.452 | 0.452 |
| Mean, phi | 0.51 | 0.55 | 0.75 |
| Mean, in. | 0.0276 | 0.0268 | 0.0234 |
| Mean, mm | 0.701 | 0.681 | 0.594 |
| Sorting | 2.808 | 2.486 | 2.393 |
| Skewness | 0.979 | -0.238 | -0.169 |
| Kurtosis | 0.077 | 0.528 | 1.045 |

| Grain Size Description | Medium sand |
|------------------------|----------------------------|
| (ASTM-USCS Scale) | (based on Mean from Trask) |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 15.04 |
| Coarse Sand | 10 | 5.42 |
| Medium Sand | 40 | 32.81 |
| Fine Sand | 200 | 36.40 |
| Silt/Clay | <200 | 10.33 |
| Total | | 100 |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: A1-09 (45-47)
 Depth, ft: 46.3



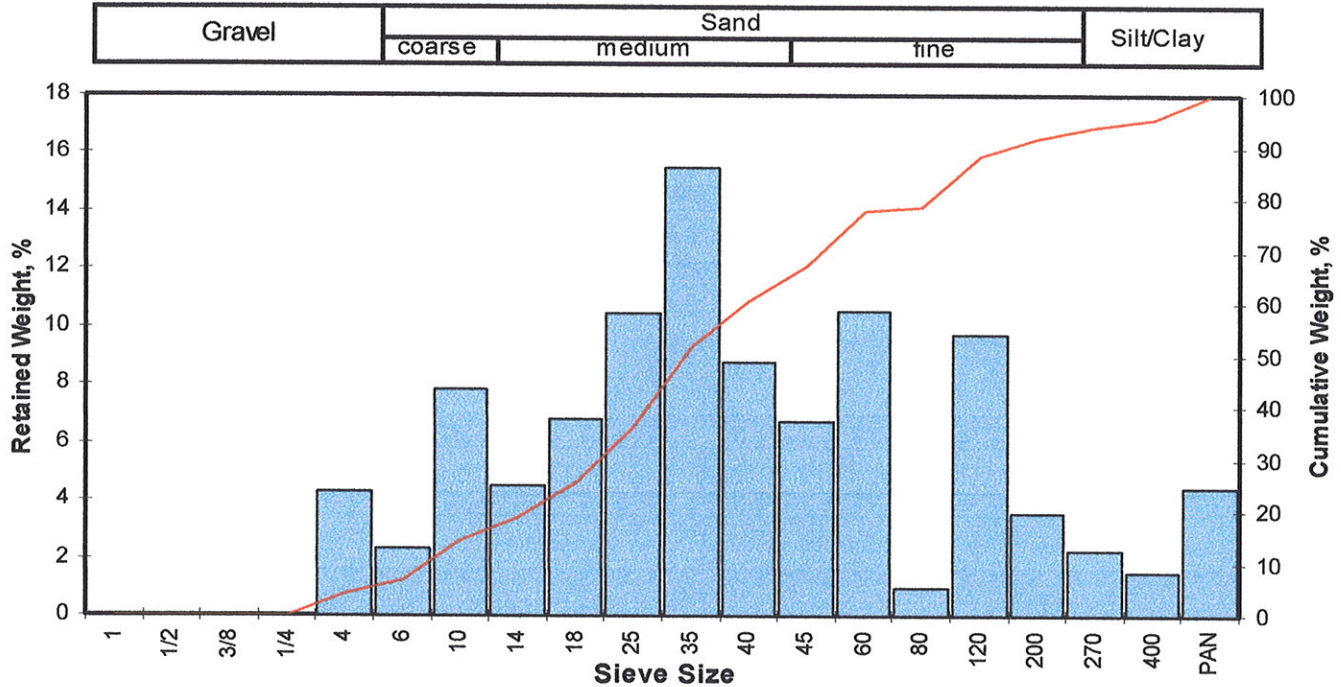
| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|---------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|--|-----------|---------------|-------------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | | | Inches | Millimeters |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 | 5 | -1.52 | 0.1130 | 2.869 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 | 10 | -0.97 | 0.0771 | 1.960 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 | 16 | -0.48 | 0.0551 | 1.399 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 25 | 0.00 | 0.0394 | 1.001 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 | 40 | 0.55 | 0.0269 | 0.682 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.38 | 2.95 | 2.95 | 50 | 0.82 | 0.0223 | 0.565 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.86 | 6.69 | 9.64 | 60 | 1.06 | 0.0189 | 0.480 |
| 0.0557 | 1.414 | -0.50 | 14 | 0.78 | 6.07 | 15.71 | 75 | 1.42 | 0.0147 | 0.374 |
| 0.0394 | 1.000 | 0.00 | 18 | 1.20 | 9.33 | 25.04 | 84 | 2.64 | 0.0063 | 0.161 |
| 0.0278 | 0.707 | 0.50 | 25 | 1.68 | 13.06 | 38.10 | 90 | 2.92 | 0.0052 | 0.132 |
| 0.0197 | 0.500 | 1.00 | 35 | 2.37 | 18.43 | 56.53 | 95 | 3.93 | 0.0026 | 0.066 |
| 0.0166 | 0.420 | 1.25 | 40 | 1.89 | 14.70 | 71.23 | | | | |
| 0.0139 | 0.354 | 1.50 | 45 | 0.72 | 5.60 | 76.83 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 0.39 | 3.03 | 79.86 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 0.17 | 1.32 | 81.18 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 1.34 | 10.42 | 91.60 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 0.36 | 2.80 | 94.40 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 0.22 | 1.71 | 96.11 | | | | |
| 0.0015 | 0.037 | 4.75 | 400 | 0.13 | 1.01 | 97.12 | | | | |
| | | | | PAN | 0.37 | 100.00 | | | | |
| TOTALS | | | | 12.86 | 100.00 | 100.00 | | | | |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 0.82 | 0.82 | 0.82 |
| Median, in. | 0.0223 | 0.0223 | 0.0223 |
| Median, mm | 0.565 | 0.565 | 0.565 |
| Mean, phi | 0.54 | 1.08 | 0.99 |
| Mean, in. | 0.0271 | 0.0187 | 0.0198 |
| Mean, mm | 0.688 | 0.475 | 0.503 |
| Sorting | 1.636 | 1.560 | 1.605 |
| Skewness | 1.083 | 0.162 | 0.151 |
| Kurtosis | 0.172 | 0.746 | 1.571 |

| Grain Size Description (ASTM-USCS Scale) | | Medium sand (based on Mean from Trask) | |
|--|---------------------|--|--|
| Description | Retained on Sieve # | Weight Percent | |
| Gravel | 4 | 0.00 | |
| Coarse Sand | 10 | 9.64 | |
| Medium Sand | 40 | 61.59 | |
| Fine Sand | 200 | 23.17 | |
| Silt/Clay | <200 | 5.60 | |
| Total | | 100 | |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

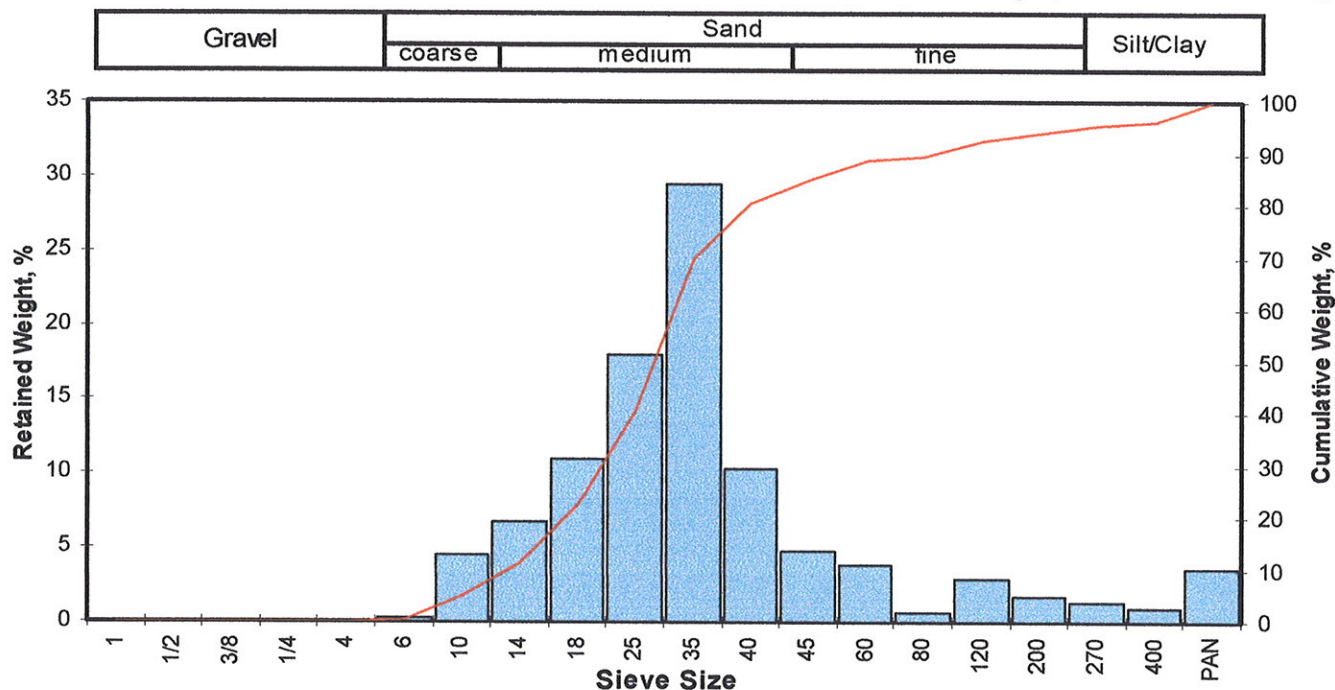
PTS File No: 34379
 Sample ID: A1-09 (75-77)
 Depth, ft: 75.8



| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|---------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|--|-------------|---------------|-------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | Inches | Millimeters | | |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 | 5 | -2.10 | 0.1688 | 4.287 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 | 10 | -1.43 | 0.1058 | 2.686 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 | 16 | -0.83 | 0.0698 | 1.773 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 25 | -0.05 | 0.0409 | 1.038 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.71 | 4.31 | 4.31 | 40 | 0.62 | 0.0255 | 0.649 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.38 | 2.31 | 6.61 | 50 | 0.95 | 0.0204 | 0.519 |
| 0.0787 | 2.000 | -1.00 | 10 | 1.29 | 7.83 | 14.44 | 60 | 1.24 | 0.0167 | 0.424 |
| 0.0557 | 1.414 | -0.50 | 14 | 0.74 | 4.49 | 18.93 | 75 | 1.88 | 0.0107 | 0.272 |
| 0.0394 | 1.000 | 0.00 | 18 | 1.12 | 6.80 | 25.73 | 84 | 2.78 | 0.0057 | 0.146 |
| 0.0278 | 0.707 | 0.50 | 25 | 1.72 | 10.44 | 36.17 | 90 | 3.36 | 0.0038 | 0.097 |
| 0.0197 | 0.500 | 1.00 | 35 | 2.55 | 15.47 | 51.64 | 95 | 4.56 | 0.0017 | 0.042 |
| 0.0166 | 0.420 | 1.25 | 40 | 1.44 | 8.74 | 60.38 | | | | |
| 0.0139 | 0.354 | 1.50 | 45 | 1.11 | 6.74 | 67.11 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 1.73 | 10.50 | 77.61 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 0.16 | 0.97 | 78.58 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 1.60 | 9.71 | 88.29 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 0.58 | 3.52 | 91.81 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 0.37 | 2.25 | 94.05 | | | | |
| 0.0015 | 0.037 | 4.75 | 400 | 0.25 | 1.52 | 95.57 | | | | |
| PAN | | | | 0.73 | 4.43 | 100.00 | | | | |
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Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: A1-1 (85-87)
 Depth, ft: 85.8



| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent |
|---------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.05 | 0.24 | 0.24 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.95 | 4.51 | 4.75 |
| 0.0557 | 1.414 | -0.50 | 14 | 1.42 | 6.75 | 11.50 |
| 0.0394 | 1.000 | 0.00 | 18 | 2.32 | 11.02 | 22.52 |
| 0.0278 | 0.707 | 0.50 | 25 | 3.79 | 18.00 | 40.52 |
| 0.0197 | 0.500 | 1.00 | 35 | 6.19 | 29.41 | 69.93 |
| 0.0166 | 0.420 | 1.25 | 40 | 2.17 | 10.31 | 80.24 |
| 0.0139 | 0.354 | 1.50 | 45 | 1.00 | 4.75 | 84.99 |
| 0.0098 | 0.250 | 2.00 | 60 | 0.80 | 3.80 | 88.79 |
| 0.0070 | 0.177 | 2.50 | 80 | 0.14 | 0.67 | 89.45 |
| 0.0049 | 0.125 | 3.00 | 120 | 0.62 | 2.95 | 92.40 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.36 | 1.71 | 94.11 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.28 | 1.33 | 95.44 |
| 0.0015 | 0.037 | 4.75 | 400 | 0.20 | 0.95 | 96.39 |
| PAN | | | | 0.76 | 3.61 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -0.98 | 0.0777 | 1.975 |
| 10 | -0.61 | 0.0601 | 1.527 |
| 16 | -0.30 | 0.0483 | 1.227 |
| 25 | 0.07 | 0.0375 | 0.953 |
| 40 | 0.49 | 0.0281 | 0.714 |
| 50 | 0.66 | 0.0249 | 0.632 |
| 60 | 0.83 | 0.0221 | 0.562 |
| 75 | 1.12 | 0.0181 | 0.459 |
| 84 | 1.45 | 0.0144 | 0.367 |
| 90 | 2.59 | 0.0065 | 0.166 |
| 95 | 4.08 | 0.0023 | 0.059 |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 0.66 | 0.66 | 0.66 |
| Median, in. | 0.0249 | 0.0249 | 0.0249 |
| Median, mm | 0.632 | 0.632 | 0.632 |
| Mean, phi | 0.50 | 0.58 | 0.60 |
| Mean, in. | 0.0278 | 0.0264 | 0.0259 |
| Mean, mm | 0.706 | 0.671 | 0.658 |
| Sorting | 1.441 | 0.872 | 1.204 |
| Skewness | 1.046 | -0.097 | 0.127 |
| Kurtosis | 0.181 | 1.906 | 1.970 |

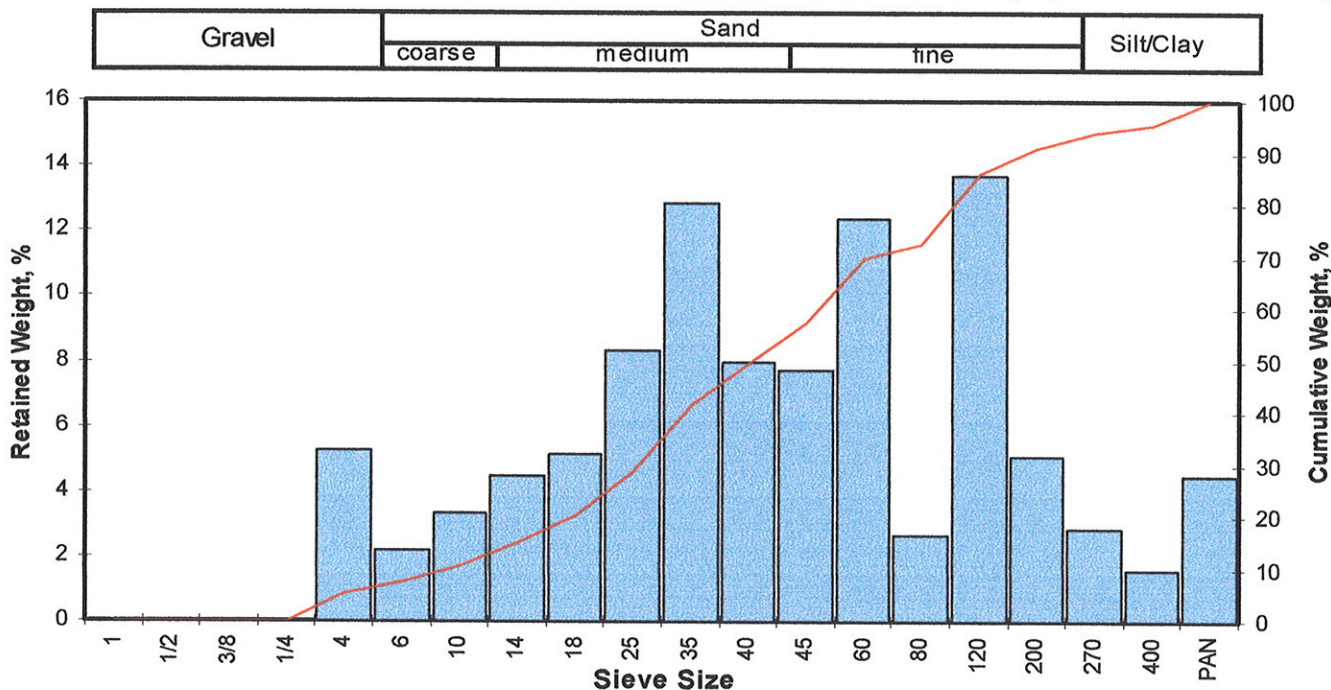
| Grain Size Description | Medium sand |
|------------------------|----------------------------|
| (ASTM-USCS Scale) | (based on Mean from Trask) |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 4.75 |
| Medium Sand | 40 | 75.49 |
| Fine Sand | 200 | 13.87 |
| Silt/Clay | <200 | 5.89 |
| Total | | 100 |

TOTALS 21.05 100.00 100.00

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: A1-10 (45-47)
 Depth, ft: 46.3



| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent |
|---------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.86 | 5.27 | 5.27 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.35 | 2.15 | 7.42 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.54 | 3.31 | 10.73 |
| 0.0557 | 1.414 | -0.50 | 14 | 0.73 | 4.48 | 15.21 |
| 0.0394 | 1.000 | 0.00 | 18 | 0.84 | 5.15 | 20.36 |
| 0.0278 | 0.707 | 0.50 | 25 | 1.36 | 8.34 | 28.69 |
| 0.0197 | 0.500 | 1.00 | 35 | 2.10 | 12.88 | 41.57 |
| 0.0166 | 0.420 | 1.25 | 40 | 1.30 | 7.97 | 49.54 |
| 0.0139 | 0.354 | 1.50 | 45 | 1.26 | 7.73 | 57.27 |
| 0.0098 | 0.250 | 2.00 | 60 | 2.02 | 12.39 | 69.65 |
| 0.0070 | 0.177 | 2.50 | 80 | 0.43 | 2.64 | 72.29 |
| 0.0049 | 0.125 | 3.00 | 120 | 2.24 | 13.73 | 86.02 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.83 | 5.09 | 91.11 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.46 | 2.82 | 93.93 |
| 0.0015 | 0.037 | 4.75 | 400 | 0.26 | 1.59 | 95.52 |
| PAN | | | | 0.73 | 4.48 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -2.27 | 0.1901 | 4.829 |
| 10 | -1.17 | 0.0883 | 2.243 |
| 16 | -0.42 | 0.0528 | 1.341 |
| 25 | 0.28 | 0.0325 | 0.824 |
| 40 | 0.94 | 0.0205 | 0.522 |
| 50 | 1.26 | 0.0164 | 0.416 |
| 60 | 1.61 | 0.0129 | 0.328 |
| 75 | 2.60 | 0.0065 | 0.165 |
| 84 | 2.93 | 0.0052 | 0.132 |
| 90 | 3.59 | 0.0033 | 0.083 |
| 95 | 4.59 | 0.0016 | 0.042 |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 1.26 | 1.26 | 1.26 |
| Median, in. | 0.0164 | 0.0164 | 0.0164 |
| Median, mm | 0.416 | 0.416 | 0.416 |
| Mean, phi | 1.02 | 1.25 | 1.26 |
| Mean, in. | 0.0195 | 0.0165 | 0.0165 |
| Mean, mm | 0.495 | 0.420 | 0.419 |
| Sorting | 2.235 | 1.675 | 1.876 |
| Skewness | 0.887 | -0.008 | -0.020 |
| Kurtosis | 0.153 | 1.047 | 1.211 |

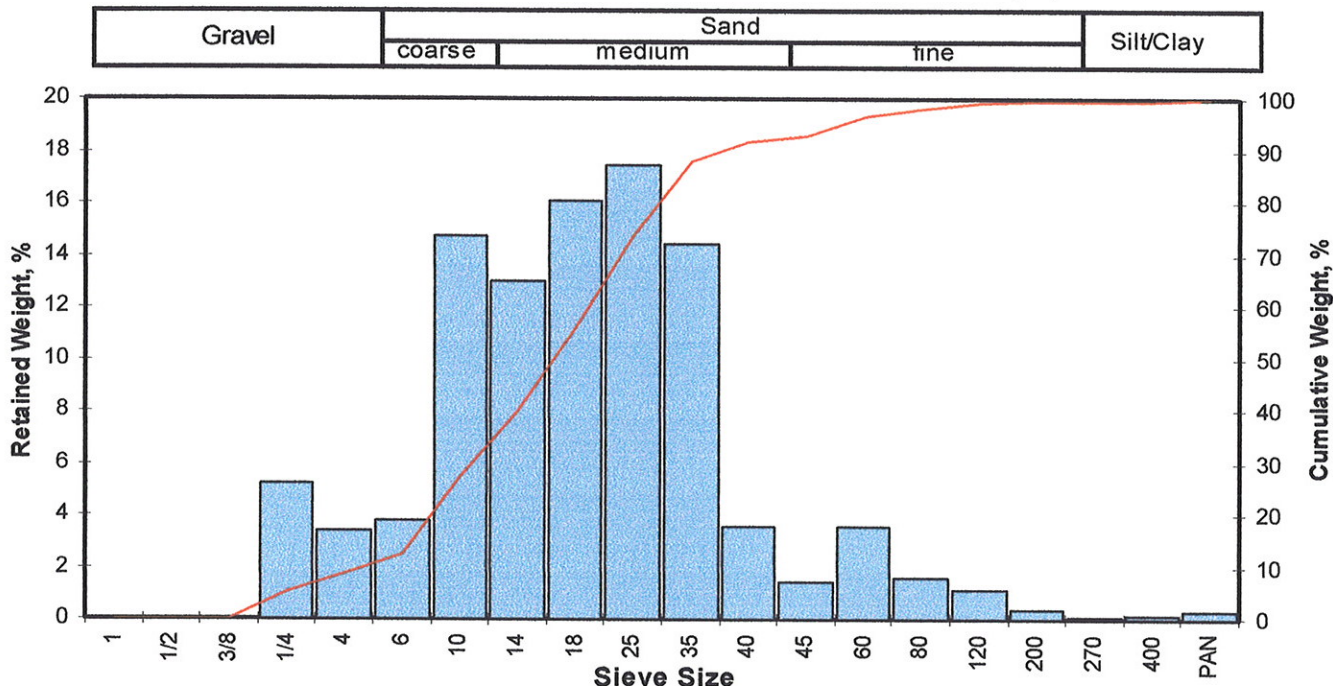
Grain Size Description (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 5.27 |
| Coarse Sand | 10 | 5.46 |
| Medium Sand | 40 | 38.81 |
| Fine Sand | 200 | 41.57 |
| Silt/Clay | <200 | 8.89 |
| Total | | 100 |

TOTALS 16.31 100.00 100.00

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: A1-11 (95-97.5)
 Depth, ft: 96.3



| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent |
|---------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 1.27 | 5.19 | 5.19 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.84 | 3.43 | 8.62 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.93 | 3.80 | 12.42 |
| 0.0787 | 2.000 | -1.00 | 10 | 3.60 | 14.71 | 27.14 |
| 0.0557 | 1.414 | -0.50 | 14 | 3.17 | 12.95 | 40.09 |
| 0.0394 | 1.000 | 0.00 | 18 | 3.93 | 16.06 | 56.15 |
| 0.0278 | 0.707 | 0.50 | 25 | 4.27 | 17.45 | 73.60 |
| 0.0197 | 0.500 | 1.00 | 35 | 3.53 | 14.43 | 88.03 |
| 0.0166 | 0.420 | 1.25 | 40 | 0.86 | 3.51 | 91.54 |
| 0.0139 | 0.354 | 1.50 | 45 | 0.35 | 1.43 | 92.97 |
| 0.0098 | 0.250 | 2.00 | 60 | 0.86 | 3.51 | 96.49 |
| 0.0070 | 0.177 | 2.50 | 80 | 0.38 | 1.55 | 98.04 |
| 0.0049 | 0.125 | 3.00 | 120 | 0.27 | 1.10 | 99.14 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.09 | 0.37 | 99.51 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.02 | 0.08 | 99.59 |
| 0.0015 | 0.037 | 4.75 | 400 | 0.03 | 0.12 | 99.71 |
| PAN | | | | 0.07 | 0.29 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -2.69 | 0.2538 | 6.445 |
| 10 | -2.07 | 0.1652 | 4.195 |
| 16 | -1.57 | 0.1167 | 2.964 |
| 25 | -1.11 | 0.0849 | 2.157 |
| 40 | -0.50 | 0.0558 | 1.418 |
| 50 | -0.19 | 0.0450 | 1.142 |
| 60 | 0.11 | 0.0365 | 0.926 |
| 75 | 0.55 | 0.0269 | 0.684 |
| 84 | 0.86 | 0.0217 | 0.551 |
| 90 | 1.14 | 0.0179 | 0.454 |
| 95 | 1.79 | 0.0114 | 0.289 |

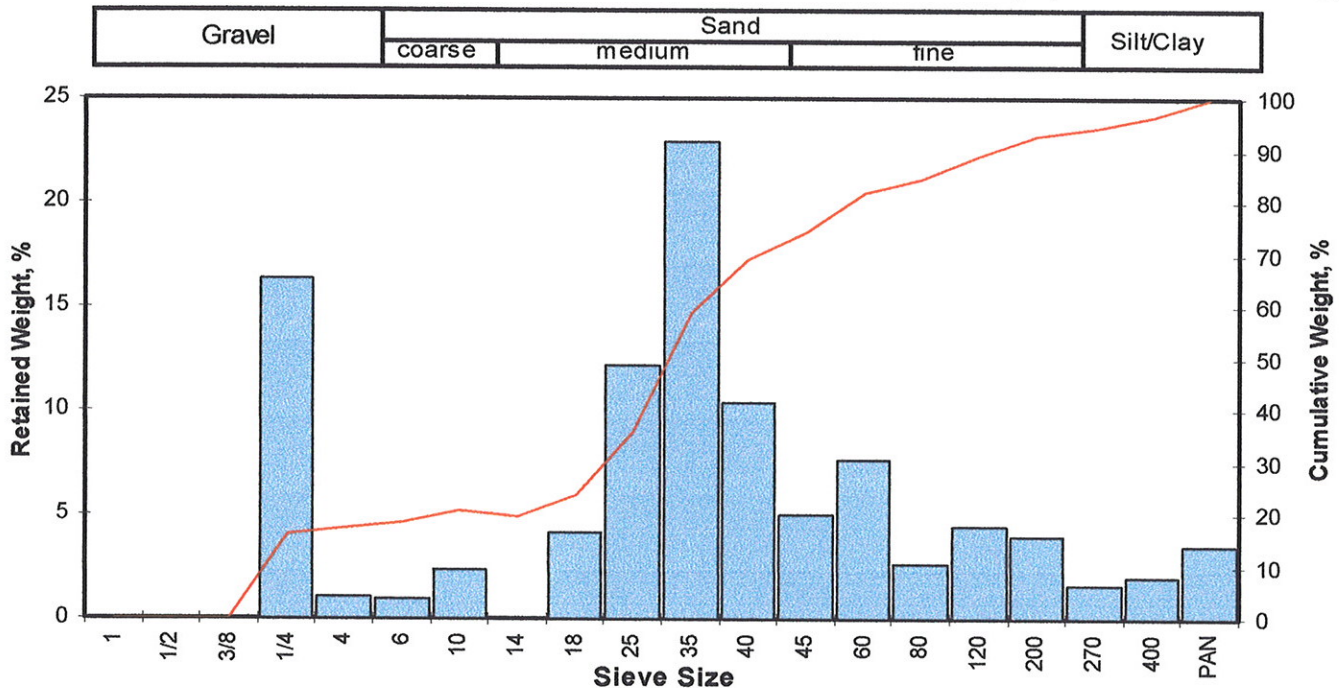
| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | -0.19 | -0.19 | -0.19 |
| Median, in. | 0.0450 | 0.0450 | 0.0450 |
| Median, mm | 1.142 | 1.142 | 1.142 |
| Mean, phi | -0.51 | -0.35 | -0.30 |
| Mean, in. | 0.0559 | 0.0503 | 0.0485 |
| Mean, mm | 1.420 | 1.278 | 1.231 |
| Sorting | 1.776 | 1.214 | 1.285 |
| Skewness | 1.063 | -0.134 | -0.124 |
| Kurtosis | 0.197 | 0.844 | 1.107 |

Grain Size Description (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 8.62 |
| Coarse Sand | 10 | 18.51 |
| Medium Sand | 40 | 64.41 |
| Fine Sand | 200 | 7.97 |
| Silt/Clay | <200 | 0.49 |
| Total | | 100 |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: A1-12 (65-67)
 Depth, ft: 66.3



| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent |
|---------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 2.60 | 16.35 | 16.35 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.17 | 1.07 | 17.42 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.15 | 0.94 | 18.36 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.37 | 2.33 | 20.69 |
| 0.0557 | 1.414 | -0.50 | 14 | -0.19 | -1.19 | 19.50 |
| 0.0394 | 1.000 | 0.00 | 18 | 0.66 | 4.15 | 23.65 |
| 0.0278 | 0.707 | 0.50 | 25 | 1.94 | 12.20 | 35.85 |
| 0.0197 | 0.500 | 1.00 | 35 | 3.65 | 22.96 | 58.81 |
| 0.0166 | 0.420 | 1.25 | 40 | 1.65 | 10.38 | 69.18 |
| 0.0139 | 0.354 | 1.50 | 45 | 0.79 | 4.97 | 74.15 |
| 0.0098 | 0.250 | 2.00 | 60 | 1.22 | 7.67 | 81.82 |
| 0.0070 | 0.177 | 2.50 | 80 | 0.42 | 2.64 | 84.47 |
| 0.0049 | 0.125 | 3.00 | 120 | 0.71 | 4.47 | 88.93 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.63 | 3.96 | 92.89 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.25 | 1.57 | 94.47 |
| 0.0015 | 0.037 | 4.75 | 400 | 0.32 | 2.01 | 96.48 |
| PAN | | | | 0.56 | 3.52 | 100.00 |
| TOTALS | | | | 15.90 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -3.07 | 0.3307 | 8.400 |
| 10 | -2.89 | 0.2924 | 7.427 |
| 16 | -2.68 | 0.2522 | 6.406 |
| 25 | 0.06 | 0.0379 | 0.962 |
| 40 | 0.59 | 0.0261 | 0.664 |
| 50 | 0.81 | 0.0225 | 0.571 |
| 60 | 1.03 | 0.0193 | 0.490 |
| 75 | 1.56 | 0.0134 | 0.340 |
| 84 | 2.41 | 0.0074 | 0.188 |
| 90 | 3.20 | 0.0043 | 0.109 |
| 95 | 4.38 | 0.0019 | 0.048 |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 0.81 | 0.81 | 0.81 |
| Median, in. | 0.0225 | 0.0225 | 0.0225 |
| Median, mm | 0.571 | 0.571 | 0.571 |
| Mean, phi | 0.62 | -0.13 | 0.18 |
| Mean, in. | 0.0256 | 0.0432 | 0.0347 |
| Mean, mm | 0.651 | 1.097 | 0.883 |
| Sorting | 1.682 | 2.546 | 2.402 |
| Skewness | 1.002 | -0.370 | -0.205 |
| Kurtosis | 0.043 | 0.464 | 2.036 |

Grain Size Description (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 17.42 |
| Coarse Sand | 10 | 3.27 |
| Medium Sand | 40 | 48.49 |
| Fine Sand | 200 | 23.71 |
| Silt/Clay | <200 | 7.11 |
| Total | | 100 |

PARTICLE SIZE SUMMARY
(METHODODOLOGY: ASTM D422/D4464M)

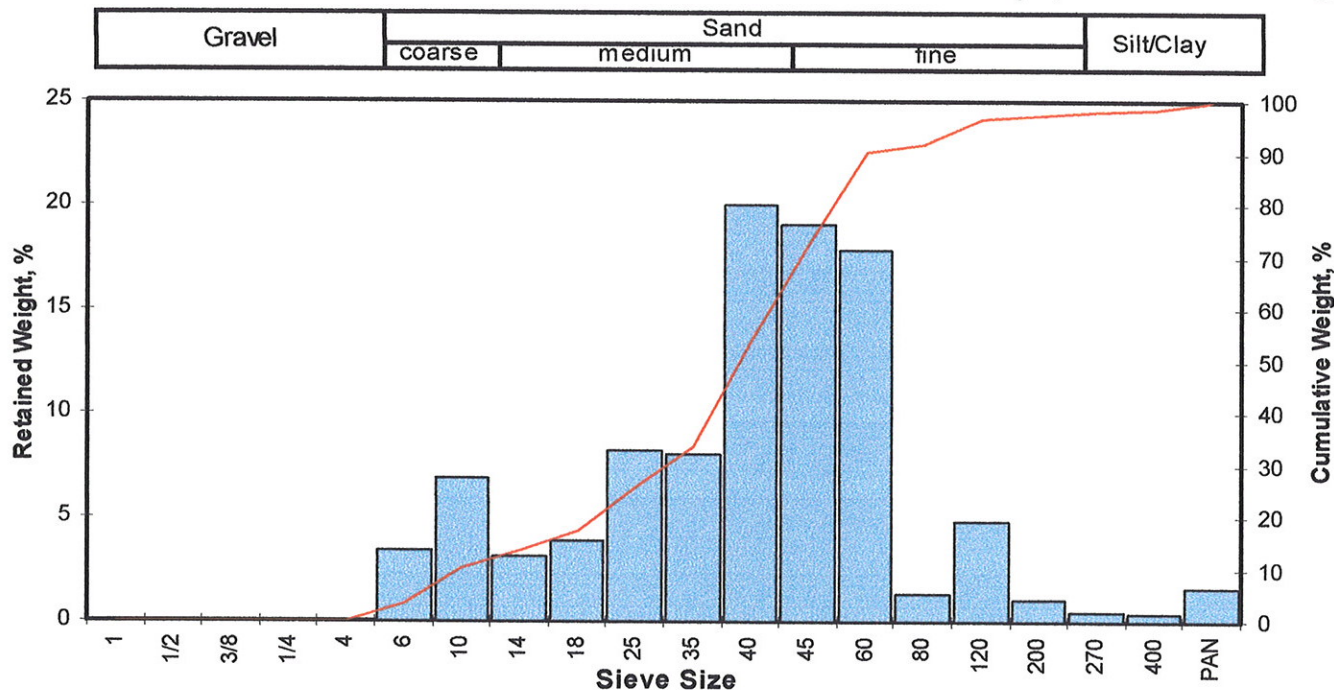
PROJECT NAME: DNAPL Characterization Study, Saugnet Area 1 Sites, Saugnet Illinois
PROJECT NO: GSI Job No. G-2876

| Sample ID | Depth, ft. | Mean Grain Size Description (1) | Median Grain Size mm | Particle Size Distribution, wt. percent | | | | | | Silt & Clay |
|-----------------|------------|---------------------------------|----------------------|---|-----------|--------|-------|------|------|-------------|
| | | | | Gravel | Sand Size | | | Silt | Clay | |
| | | | | | Coarse | Medium | Fine | | | |
| A1-16 (45-47.5) | 45.8 | Medium sand | 0.433 | 0.00 | 10.25 | 43.22 | 44.07 | (2) | (2) | 2.47 |
| AI-16 (55-57.5) | 56.3 | Medium sand | 0.745 | 0.00 | 0.00 | 75.91 | 15.18 | 6.53 | 2.38 | 8.91 |
| A1-16 (85-87) | 86.3 | Medium sand | 0.862 | 15.49 | 8.48 | 56.77 | 16.05 | (2) | (2) | 3.20 |
| AI-18 (15-17) | 15.8 | Fine sand | 0.193 | 0.00 | 0.00 | 0.06 | 89.75 | 7.30 | 2.89 | 10.19 |
| AI-18 (35-37) | 36.3 | Fine sand | 0.287 | 0.00 | 0.00 | 30.37 | 63.42 | 4.52 | 1.69 | 6.22 |
| A1-18 (75-77) | 75.8 | Medium sand | 0.621 | 0.00 | 1.52 | 67.38 | 27.38 | (2) | (2) | 3.72 |
| AI-6 (65-67) | 65.8 | Medium sand | 0.560 | 0.00 | 0.00 | 68.24 | 28.11 | 2.83 | 0.82 | 3.65 |
| A1-6 (85-87) | 85.8 | Coarse sand | 3.360 | 34.28 | 28.66 | 25.97 | 8.56 | (2) | (2) | 2.53 |

(1) Based on Mean from Trask
(2) Mechanical sieve does not differentiate silt/clay fraction

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: AI-16 (45-47.5)
 Depth, ft: 45.8



| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent |
|---------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.44 | 3.39 | 3.39 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.89 | 6.86 | 10.25 |
| 0.0557 | 1.414 | -0.50 | 14 | 0.41 | 3.16 | 13.41 |
| 0.0394 | 1.000 | 0.00 | 18 | 0.50 | 3.85 | 17.26 |
| 0.0278 | 0.707 | 0.50 | 25 | 1.07 | 8.24 | 25.50 |
| 0.0197 | 0.500 | 1.00 | 35 | 1.04 | 8.01 | 33.51 |
| 0.0166 | 0.420 | 1.25 | 40 | 2.59 | 19.95 | 53.47 |
| 0.0139 | 0.354 | 1.50 | 45 | 2.47 | 19.03 | 72.50 |
| 0.0098 | 0.250 | 2.00 | 60 | 2.31 | 17.80 | 90.29 |
| 0.0070 | 0.177 | 2.50 | 80 | 0.17 | 1.31 | 91.60 |
| 0.0049 | 0.125 | 3.00 | 120 | 0.63 | 4.85 | 96.46 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.14 | 1.08 | 97.53 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.06 | 0.46 | 98.00 |
| 0.0015 | 0.037 | 4.75 | 400 | 0.05 | 0.39 | 98.38 |
| PAN | | | | 0.21 | 1.62 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -1.57 | 0.1172 | 2.977 |
| 10 | -1.03 | 0.0802 | 2.038 |
| 16 | -0.16 | 0.0441 | 1.120 |
| 25 | 0.47 | 0.0284 | 0.722 |
| 40 | 1.08 | 0.0186 | 0.473 |
| 50 | 1.21 | 0.0171 | 0.433 |
| 60 | 1.34 | 0.0156 | 0.396 |
| 75 | 1.57 | 0.0133 | 0.337 |
| 84 | 1.82 | 0.0111 | 0.283 |
| 90 | 1.99 | 0.0099 | 0.251 |
| 95 | 2.85 | 0.0055 | 0.139 |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 1.21 | 1.21 | 1.21 |
| Median, in. | 0.0171 | 0.0171 | 0.0171 |
| Median, mm | 0.433 | 0.433 | 0.433 |
| Mean, phi | 0.92 | 0.83 | 0.96 |
| Mean, in. | 0.0208 | 0.0221 | 0.0203 |
| Mean, mm | 0.529 | 0.563 | 0.516 |
| Sorting | 1.464 | 0.993 | 1.167 |
| Skewness | 1.138 | -0.379 | -0.318 |
| Kurtosis | 0.108 | 1.227 | 1.647 |

Grain Size Description (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 10.25 |
| Medium Sand | 40 | 43.22 |
| Fine Sand | 200 | 44.07 |
| Silt/Clay | <200 | 2.47 |
| Total | | 100 |

TOTALS 12.98 100.00 100.00

Client: Groundwater Services, Inc.

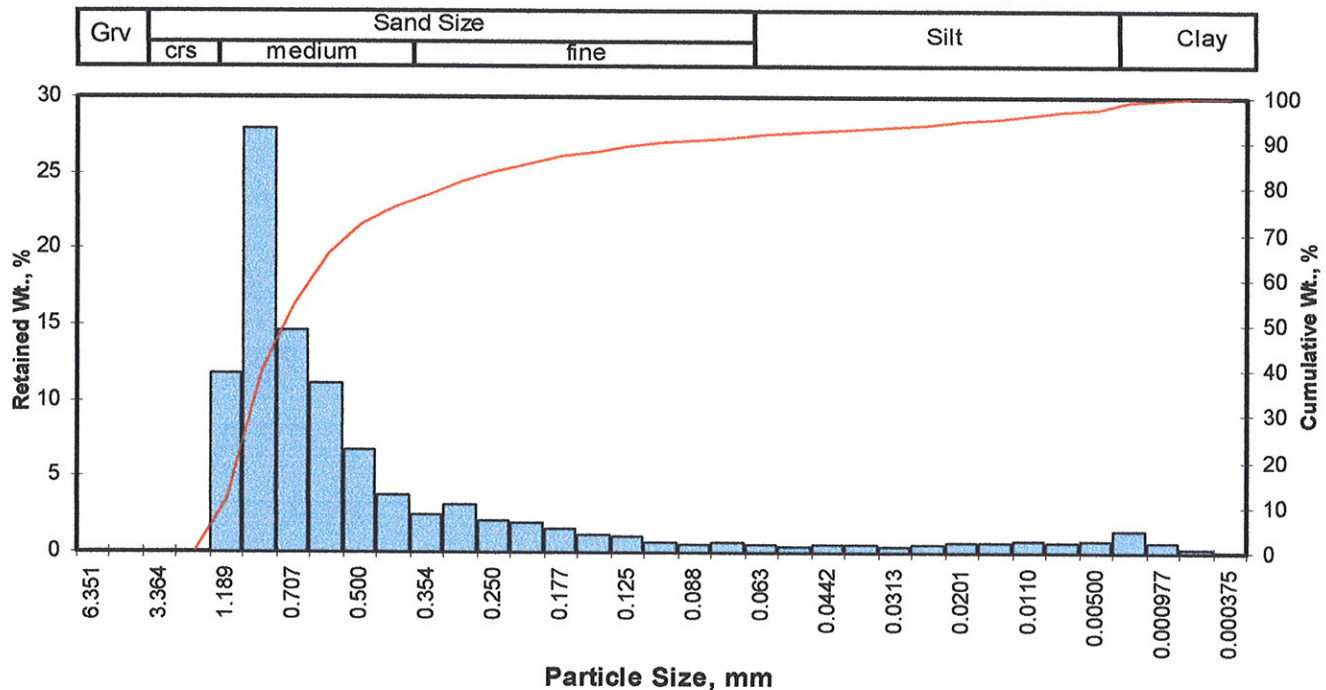
PTS File No: 34379

Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois

Sample ID: AI-16 (55-57.5)

Project No: GSI Job No. G-2876

Depth, ft: 56.3



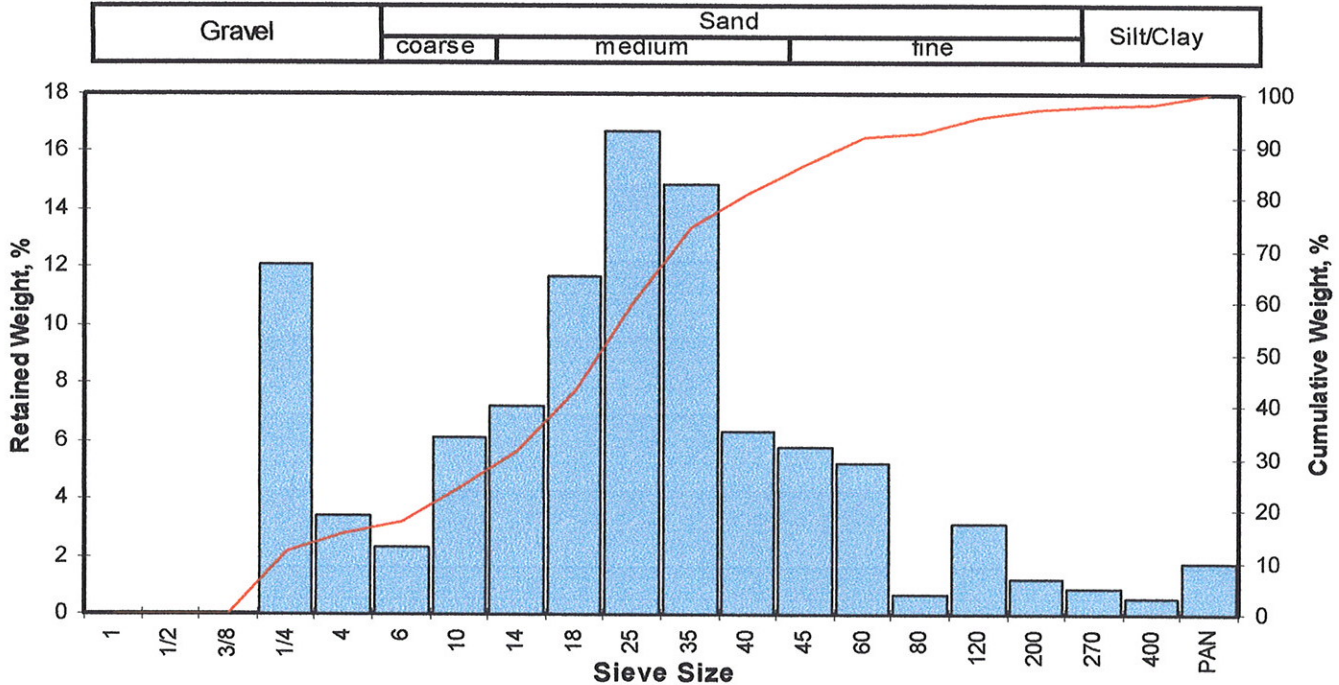
| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|--|-------------|---------------|-------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | Inches | Millimeters | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 5 | -0.68 | 0.0632 | 1.604 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 | 10 | -0.36 | 0.0507 | 1.287 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 | 16 | -0.17 | 0.0444 | 1.129 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 | 25 | -0.01 | 0.0398 | 1.010 |
| 0.0468 | 1.189 | -0.25 | 16 | 11.80 | 11.79 | 11.79 | 40 | 0.25 | 0.0330 | 0.839 |
| 0.0331 | 0.841 | 0.25 | 20 | 28.00 | 27.98 | 39.76 | 50 | 0.43 | 0.0293 | 0.745 |
| 0.0278 | 0.707 | 0.50 | 25 | 14.60 | 14.59 | 54.35 | 60 | 0.63 | 0.0255 | 0.647 |
| 0.0234 | 0.595 | 0.75 | 30 | 11.10 | 11.09 | 65.44 | 75 | 1.19 | 0.0173 | 0.438 |
| 0.0197 | 0.500 | 1.00 | 35 | 6.67 | 6.66 | 72.11 | 84 | 2.07 | 0.0094 | 0.239 |
| 0.0166 | 0.420 | 1.25 | 40 | 3.81 | 3.81 | 75.91 | 90 | 3.30 | 0.0040 | 0.102 |
| 0.0139 | 0.354 | 1.50 | 45 | 2.40 | 2.40 | 78.31 | 95 | 5.81 | 0.0007 | 0.018 |
| 0.0117 | 0.297 | 1.75 | 50 | 3.06 | 3.06 | 81.37 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 2.13 | 2.13 | 83.50 | | | | |
| 0.0083 | 0.210 | 2.25 | 70 | 1.93 | 1.93 | 85.42 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 1.56 | 1.56 | 86.98 | | | | |
| 0.0059 | 0.149 | 2.75 | 100 | 1.14 | 1.14 | 88.12 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 1.06 | 1.06 | 89.18 | | | | |
| 0.0041 | 0.105 | 3.25 | 140 | 0.71 | 0.71 | 89.89 | | | | |
| 0.0035 | 0.088 | 3.50 | 170 | 0.56 | 0.56 | 90.45 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 0.64 | 0.64 | 91.09 | | | | |
| 0.0025 | 0.063 | 4.00 | 230 | 0.57 | 0.57 | 91.66 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 0.45 | 0.45 | 92.11 | | | | |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.49 | 0.49 | 92.60 | | | | |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.51 | 0.51 | 93.11 | | | | |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.45 | 0.45 | 93.56 | | | | |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.57 | 0.57 | 94.13 | | | | |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.59 | 0.59 | 94.72 | | | | |
| 0.000615 | 0.0156 | 6.00 | | 0.62 | 0.62 | 95.34 | | | | |
| 0.000435 | 0.0110 | 6.50 | | 0.76 | 0.76 | 96.09 | | | | |
| 0.000308 | 0.00781 | 7.00 | | 0.70 | 0.70 | 96.79 | | | | |
| 0.000197 | 0.00500 | 7.65 | | 0.83 | 0.83 | 97.62 | | | | |
| 0.000077 | 0.00195 | 9.00 | | 1.37 | 1.37 | 98.99 | | | | |
| 0.000038 | 0.000977 | 10.00 | | 0.66 | 0.66 | 99.65 | | | | |
| 0.000019 | 0.000488 | 11.00 | | 0.32 | 0.32 | 99.97 | | | | |
| 0.000015 | 0.000375 | 11.38 | | 0.03 | 0.03 | 100.00 | | | | |
| TOTALS | | | | 100.10 | 100.00 | 100.00 | | | | |

| Measure | Trask | Inman | Folk-Ward |
|---|--------|---|-----------|
| Median, phi | 0.43 | 0.43 | 0.43 |
| Median, in. | 0.0293 | 0.0293 | 0.0293 |
| Median, mm | 0.745 | 0.745 | 0.745 |
| Mean, phi | 0.47 | 0.95 | 0.77 |
| Mean, in. | 0.0285 | 0.0204 | 0.0231 |
| Mean, mm | 0.724 | 0.519 | 0.586 |
| Sorting | 1.518 | 1.120 | 1.543 |
| Skewness | 0.893 | 0.464 | 0.561 |
| Kurtosis | 0.241 | 1.896 | 2.208 |
| Grain Size Description (ASTM-USCS Scale) | | Medium sand (based on Mean from Trask) | |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 75.91 |
| Fine Sand | 200 | 15.18 |
| Silt | >0.005 mm | 6.53 |
| Clay | <0.005 mm | 2.38 |
| Total | | 100 |

Client: Groundwater Services, Inc.
Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
Project No: GSI Job No. G-2876

PTS File No: 34379
Sample ID: A1-16 (85-87)
Depth, ft: 86.3



| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent |
|---------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 2.80 | 12.12 | 12.12 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.78 | 3.38 | 15.49 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.54 | 2.34 | 17.83 |
| 0.0787 | 2.000 | -1.00 | 10 | 1.42 | 6.14 | 23.97 |
| 0.0557 | 1.414 | -0.50 | 14 | 1.66 | 7.18 | 31.16 |
| 0.0394 | 1.000 | 0.00 | 18 | 2.70 | 11.68 | 42.84 |
| 0.0278 | 0.707 | 0.50 | 25 | 3.86 | 16.70 | 59.54 |
| 0.0197 | 0.500 | 1.00 | 35 | 3.44 | 14.89 | 74.43 |
| 0.0166 | 0.420 | 1.25 | 40 | 1.46 | 6.32 | 80.74 |
| 0.0139 | 0.354 | 1.50 | 45 | 1.34 | 5.80 | 86.54 |
| 0.0098 | 0.250 | 2.00 | 60 | 1.21 | 5.24 | 91.78 |
| 0.0070 | 0.177 | 2.50 | 80 | 0.15 | 0.65 | 92.43 |
| 0.0049 | 0.125 | 3.00 | 120 | 0.72 | 3.12 | 95.54 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.29 | 1.25 | 96.80 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.20 | 0.87 | 97.66 |
| 0.0015 | 0.037 | 4.75 | 400 | 0.13 | 0.56 | 98.23 |
| | | | PAN | 0.41 | 1.77 | 100.00 |
| TOTALS | | | | | | |
| | | | | 23.11 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -3.01 | 0.3168 | 8.046 |
| 10 | -2.77 | 0.2683 | 6.814 |
| 16 | -2.14 | 0.1737 | 4.411 |
| 25 | -0.93 | 0.0749 | 1.903 |
| 40 | -0.12 | 0.0428 | 1.088 |
| 50 | 0.21 | 0.0339 | 0.862 |
| 60 | 0.52 | 0.0275 | 0.700 |
| 75 | 1.02 | 0.0194 | 0.492 |
| 84 | 1.39 | 0.0150 | 0.381 |
| 90 | 1.83 | 0.0111 | 0.281 |
| 95 | 2.91 | 0.0052 | 0.133 |

| Measure | Trask | Inman | Folk-Ward |
|---|--------|---|-----------|
| Median, phi | 0.21 | 0.21 | 0.21 |
| Median, in. | 0.0339 | 0.0339 | 0.0339 |
| Median, mm | 0.862 | 0.862 | 0.862 |
| Mean, phi | -0.26 | -0.38 | -0.18 |
| Mean, in. | 0.0472 | 0.0511 | 0.0446 |
| Mean, mm | 1.198 | 1.297 | 1.132 |
| Sorting | 1.966 | 1.766 | 1.780 |
| Skewness | 1.123 | -0.334 | -0.211 |
| Kurtosis | 0.108 | 0.677 | 1.244 |
| Grain Size Description (ASTM-USCS Scale) | | Medium sand (based on Mean from Trask) | |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 15.49 |
| Coarse Sand | 10 | 8.48 |
| Medium Sand | 40 | 56.77 |
| Fine Sand | 200 | 16.05 |
| Silt/Clay | <200 | 3.20 |
| Total | | 100 |

Client: Groundwater Services, Inc.

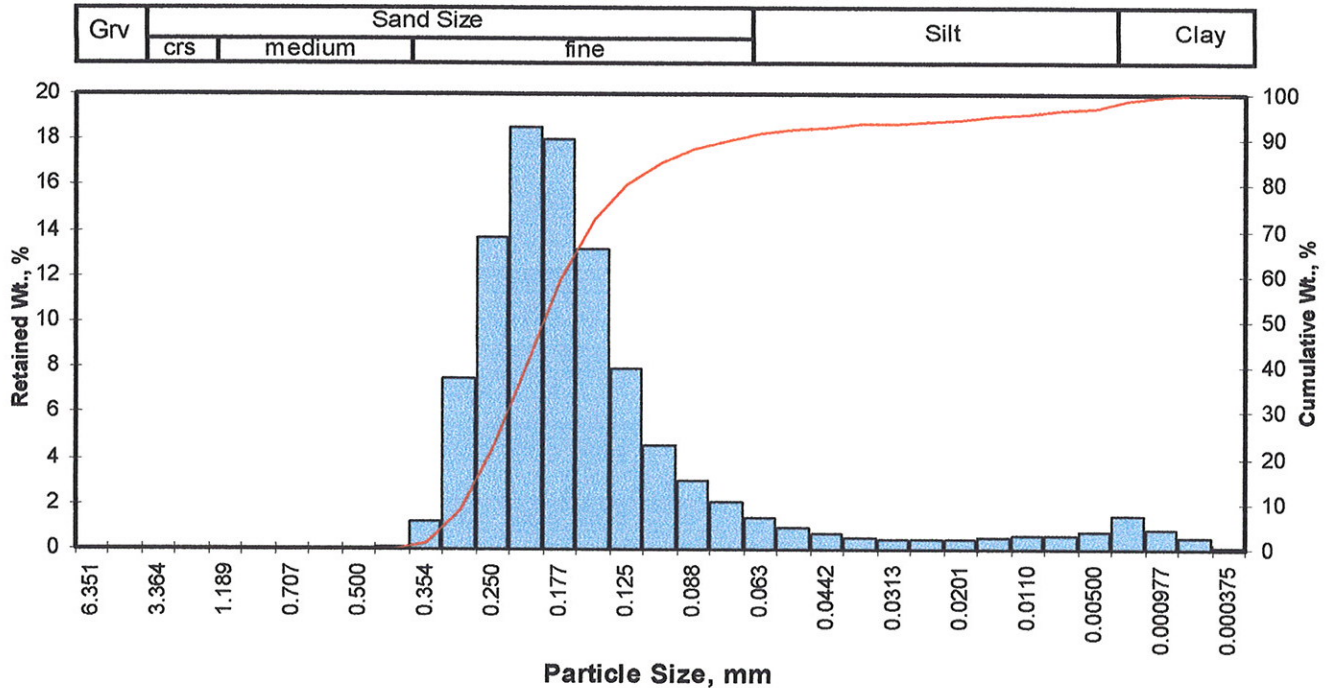
PTS File No: 34379

Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois

Sample ID: AI-18 (15-17)

Project No: GSI Job No. G-2876

Depth, ft: 15.8



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|---------------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 0.00 | 0.00 | 0.00 |
| 0.0331 | 0.841 | 0.25 | 20 | 0.00 | 0.00 | 0.00 |
| 0.0278 | 0.707 | 0.50 | 25 | 0.00 | 0.00 | 0.00 |
| 0.0234 | 0.595 | 0.75 | 30 | 0.00 | 0.00 | 0.00 |
| 0.0197 | 0.500 | 1.00 | 35 | 0.00 | 0.00 | 0.00 |
| 0.0166 | 0.420 | 1.25 | 40 | 0.06 | 0.06 | 0.06 |
| 0.0139 | 0.354 | 1.50 | 45 | 1.18 | 1.18 | 1.24 |
| 0.0117 | 0.297 | 1.75 | 50 | 7.50 | 7.51 | 8.75 |
| 0.0098 | 0.250 | 2.00 | 60 | 13.70 | 13.72 | 22.47 |
| 0.0083 | 0.210 | 2.25 | 70 | 18.50 | 18.53 | 41.00 |
| 0.0070 | 0.177 | 2.50 | 80 | 18.00 | 18.03 | 59.03 |
| 0.0059 | 0.149 | 2.75 | 100 | 13.20 | 13.22 | 72.24 |
| 0.0049 | 0.125 | 3.00 | 120 | 7.88 | 7.89 | 80.13 |
| 0.0041 | 0.105 | 3.25 | 140 | 4.60 | 4.61 | 84.74 |
| 0.0035 | 0.088 | 3.50 | 170 | 2.97 | 2.97 | 87.72 |
| 0.0029 | 0.074 | 3.75 | 200 | 2.09 | 2.09 | 89.81 |
| 0.0025 | 0.063 | 4.00 | 230 | 1.39 | 1.39 | 91.20 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.92 | 0.92 | 92.12 |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.68 | 0.68 | 92.80 |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.52 | 0.52 | 93.32 |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.39 | 0.39 | 93.71 |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.43 | 0.43 | 94.14 |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.45 | 0.45 | 94.60 |
| 0.000615 | 0.0156 | 6.00 | | 0.50 | 0.50 | 95.10 |
| 0.000435 | 0.0110 | 6.50 | | 0.63 | 0.63 | 95.73 |
| 0.000308 | 0.00781 | 7.00 | | 0.61 | 0.61 | 96.34 |
| 0.000197 | 0.00500 | 7.65 | | 0.77 | 0.77 | 97.11 |
| 0.000077 | 0.00195 | 9.00 | | 1.46 | 1.46 | 98.57 |
| 0.000038 | 0.000977 | 10.00 | | 0.88 | 0.88 | 99.45 |
| 0.000019 | 0.000488 | 11.00 | | 0.50 | 0.50 | 99.95 |
| 0.000015 | 0.000375 | 11.38 | | 0.05 | 0.05 | 100.00 |
| TOTALS | | | | 99.90 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | 1.63 | 0.0128 | 0.324 |
| 10 | 1.77 | 0.0115 | 0.293 |
| 16 | 1.88 | 0.0107 | 0.271 |
| 25 | 2.03 | 0.0096 | 0.244 |
| 40 | 2.24 | 0.0084 | 0.212 |
| 50 | 2.37 | 0.0076 | 0.193 |
| 60 | 2.52 | 0.0069 | 0.175 |
| 75 | 2.84 | 0.0055 | 0.140 |
| 84 | 3.21 | 0.0043 | 0.108 |
| 90 | 3.78 | 0.0029 | 0.073 |
| 95 | 5.93 | 0.0006 | 0.016 |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 2.37 | 2.37 | 2.37 |
| Median, in. | 0.0076 | 0.0076 | 0.0076 |
| Median, mm | 0.193 | 0.193 | 0.193 |
| Mean, phi | 2.38 | 2.55 | 2.49 |
| Mean, in. | 0.0076 | 0.0067 | 0.0070 |
| Mean, mm | 0.192 | 0.171 | 0.178 |
| Sorting | 1.321 | 0.664 | 0.984 |
| Skewness | 0.959 | 0.258 | 0.455 |
| Kurtosis | 0.237 | 2.243 | 2.197 |

| Grain Size Description | Fine sand |
|------------------------|----------------------------|
| (ASTM-USCS Scale) | (based on Mean from Trask) |

| Description | Retained on Sieve # | Weight Percent |
|--------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 0.06 |
| Fine Sand | 200 | 89.75 |
| Silt | >0.005 mm | 7.30 |
| Clay | <0.005 mm | 2.89 |
| Total | | 100 |

Client: Groundwater Services, Inc.

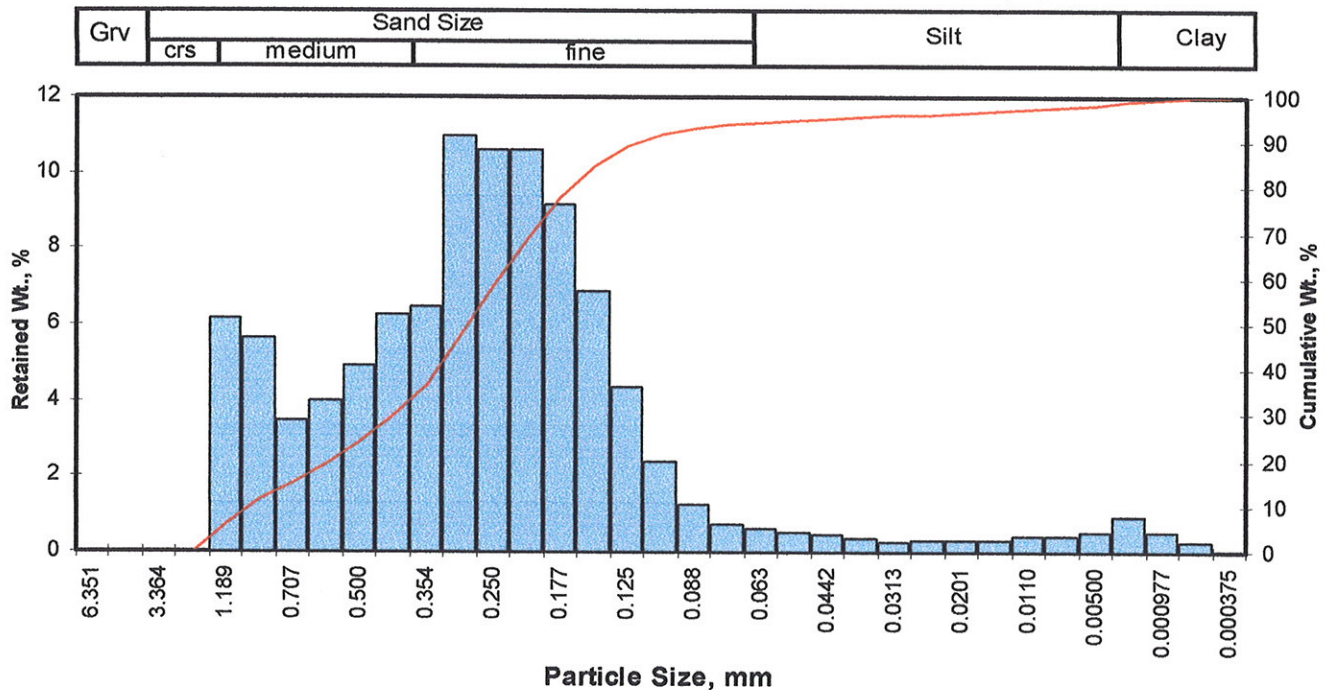
PTS File No: 34379

Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois

Sample ID: AI-18 (35-37)

Project No: GSI Job No. G-2876

Depth, ft: 36.3



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|---------------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 6.14 | 6.13 | 6.13 |
| 0.0331 | 0.841 | 0.25 | 20 | 5.66 | 5.65 | 11.79 |
| 0.0278 | 0.707 | 0.50 | 25 | 3.45 | 3.45 | 15.23 |
| 0.0234 | 0.595 | 0.75 | 30 | 3.99 | 3.99 | 19.22 |
| 0.0197 | 0.500 | 1.00 | 35 | 4.91 | 4.90 | 24.12 |
| 0.0166 | 0.420 | 1.25 | 40 | 6.25 | 6.24 | 30.37 |
| 0.0139 | 0.354 | 1.50 | 45 | 6.48 | 6.47 | 36.84 |
| 0.0117 | 0.297 | 1.75 | 50 | 11.00 | 10.99 | 47.83 |
| 0.0098 | 0.250 | 2.00 | 60 | 10.60 | 10.59 | 58.41 |
| 0.0083 | 0.210 | 2.25 | 70 | 10.60 | 10.59 | 69.00 |
| 0.0070 | 0.177 | 2.50 | 80 | 9.18 | 9.17 | 78.17 |
| 0.0059 | 0.149 | 2.75 | 100 | 6.90 | 6.89 | 85.06 |
| 0.0049 | 0.125 | 3.00 | 120 | 4.36 | 4.35 | 89.42 |
| 0.0041 | 0.105 | 3.25 | 140 | 2.39 | 2.39 | 91.80 |
| 0.0035 | 0.088 | 3.50 | 170 | 1.23 | 1.23 | 93.03 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.75 | 0.75 | 93.78 |
| 0.0025 | 0.063 | 4.00 | 230 | 0.60 | 0.60 | 94.38 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.54 | 0.54 | 94.92 |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.46 | 0.46 | 95.38 |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.36 | 0.36 | 95.74 |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.28 | 0.28 | 96.02 |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.31 | 0.31 | 96.33 |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.30 | 0.30 | 96.63 |
| 0.000615 | 0.0156 | 6.00 | | 0.33 | 0.33 | 96.96 |
| 0.000435 | 0.0110 | 6.50 | | 0.44 | 0.44 | 97.40 |
| 0.000308 | 0.00781 | 7.00 | | 0.41 | 0.41 | 97.81 |
| 0.000197 | 0.00500 | 7.65 | | 0.50 | 0.50 | 98.31 |
| 0.000077 | 0.00195 | 9.00 | | 0.92 | 0.92 | 99.23 |
| 0.000038 | 0.000977 | 10.00 | | 0.50 | 0.50 | 99.73 |
| 0.000019 | 0.000488 | 11.00 | | 0.25 | 0.25 | 99.98 |
| 0.000015 | 0.000375 | 11.38 | | 0.03 | 0.02 | 100.00 |
| TOTALS | | | | 100.10 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -0.39 | 0.0515 | 1.309 |
| 10 | 0.09 | 0.0369 | 0.938 |
| 16 | 0.55 | 0.0269 | 0.684 |
| 25 | 1.04 | 0.0192 | 0.488 |
| 40 | 1.57 | 0.0132 | 0.336 |
| 50 | 1.80 | 0.0113 | 0.287 |
| 60 | 2.04 | 0.0096 | 0.244 |
| 75 | 2.41 | 0.0074 | 0.188 |
| 84 | 2.71 | 0.0060 | 0.153 |
| 90 | 3.06 | 0.0047 | 0.120 |
| 95 | 4.29 | 0.0020 | 0.051 |

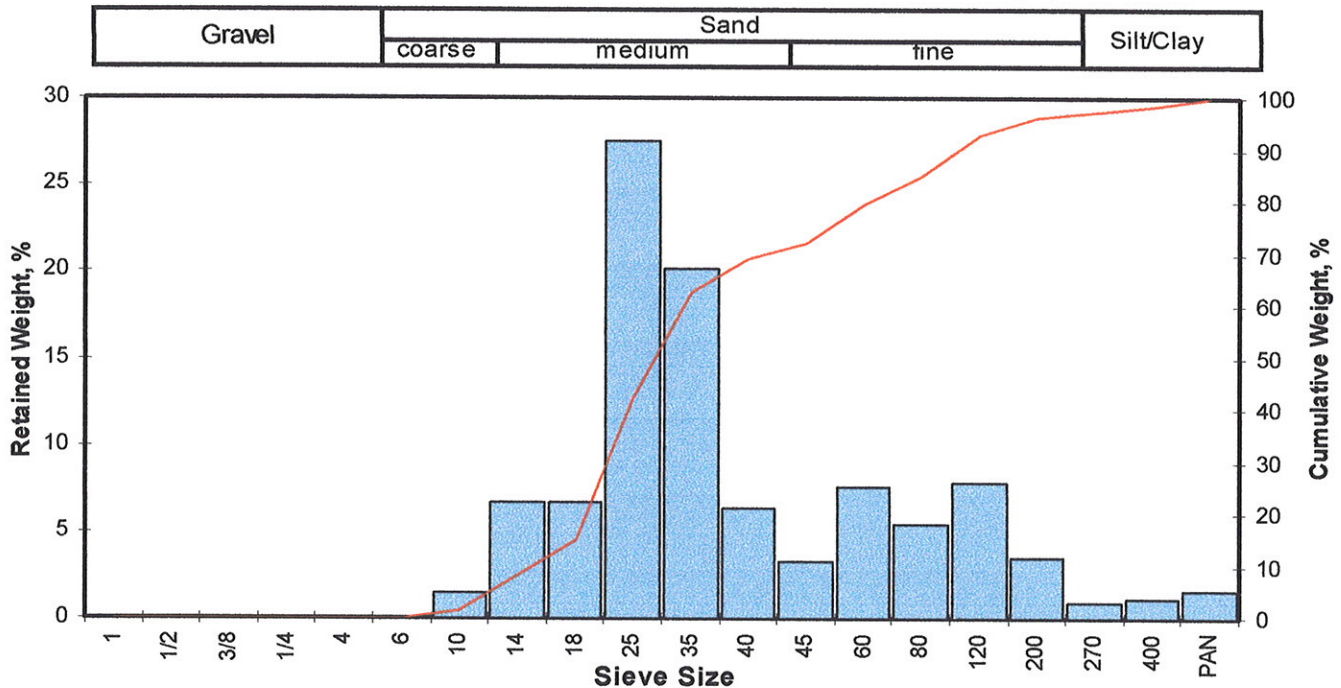
| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 1.80 | 1.80 | 1.80 |
| Median, in. | 0.0113 | 0.0113 | 0.0113 |
| Median, mm | 0.287 | 0.287 | 0.287 |
| Mean, phi | 1.57 | 1.63 | 1.69 |
| Mean, in. | 0.0133 | 0.0127 | 0.0122 |
| Mean, mm | 0.338 | 0.323 | 0.311 |
| Sorting | 1.612 | 1.082 | 1.250 |
| Skewness | 1.055 | -0.159 | -0.047 |
| Kurtosis | 0.183 | 1.164 | 1.392 |

| Grain Size Description | Fine sand |
|------------------------|----------------------------|
| (ASTM-USCS Scale) | (based on Mean from Trask) |

| Description | Retained on Sieve # | Weight Percent |
|--------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 30.37 |
| Fine Sand | 200 | 63.42 |
| Silt | >0.005 mm | 4.52 |
| Clay | <0.005 mm | 1.69 |
| Total | | 100 |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: A1-18 (75-77)
 Depth, ft: 75.8



| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|---------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|--|-------------|---------------|-------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | Inches | Millimeters | | |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 | 5 | -0.74 | 0.0658 | 1.670 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 | 10 | -0.37 | 0.0508 | 1.289 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 | 16 | 0.02 | 0.0388 | 0.986 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 25 | 0.18 | 0.0347 | 0.881 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 | 40 | 0.46 | 0.0287 | 0.729 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 | 50 | 0.69 | 0.0244 | 0.621 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.31 | 1.52 | 1.52 | 60 | 0.94 | 0.0206 | 0.523 |
| 0.0557 | 1.414 | -0.50 | 14 | 1.37 | 6.70 | 8.22 | 75 | 1.69 | 0.0122 | 0.310 |
| 0.0394 | 1.000 | 0.00 | 18 | 1.37 | 6.70 | 14.91 | 84 | 2.40 | 0.0074 | 0.189 |
| 0.0278 | 0.707 | 0.50 | 25 | 5.63 | 27.53 | 42.44 | 90 | 2.82 | 0.0056 | 0.142 |
| 0.0197 | 0.500 | 1.00 | 35 | 4.12 | 20.15 | 62.59 | 95 | 3.47 | 0.0035 | 0.090 |
| 0.0166 | 0.420 | 1.25 | 40 | 1.29 | 6.31 | 68.90 | | | | |
| 0.0139 | 0.354 | 1.50 | 45 | 0.66 | 3.23 | 72.13 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 1.54 | 7.53 | 79.66 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 1.10 | 5.38 | 85.04 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 1.59 | 7.78 | 92.81 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 0.71 | 3.47 | 96.28 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 0.19 | 0.93 | 97.21 | | | | |
| 0.0015 | 0.037 | 4.75 | 400 | 0.24 | 1.17 | 98.39 | | | | |
| | | | | PAN | 0.33 | 1.61 | 100.00 | | | |
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Client: Groundwater Services, Inc.

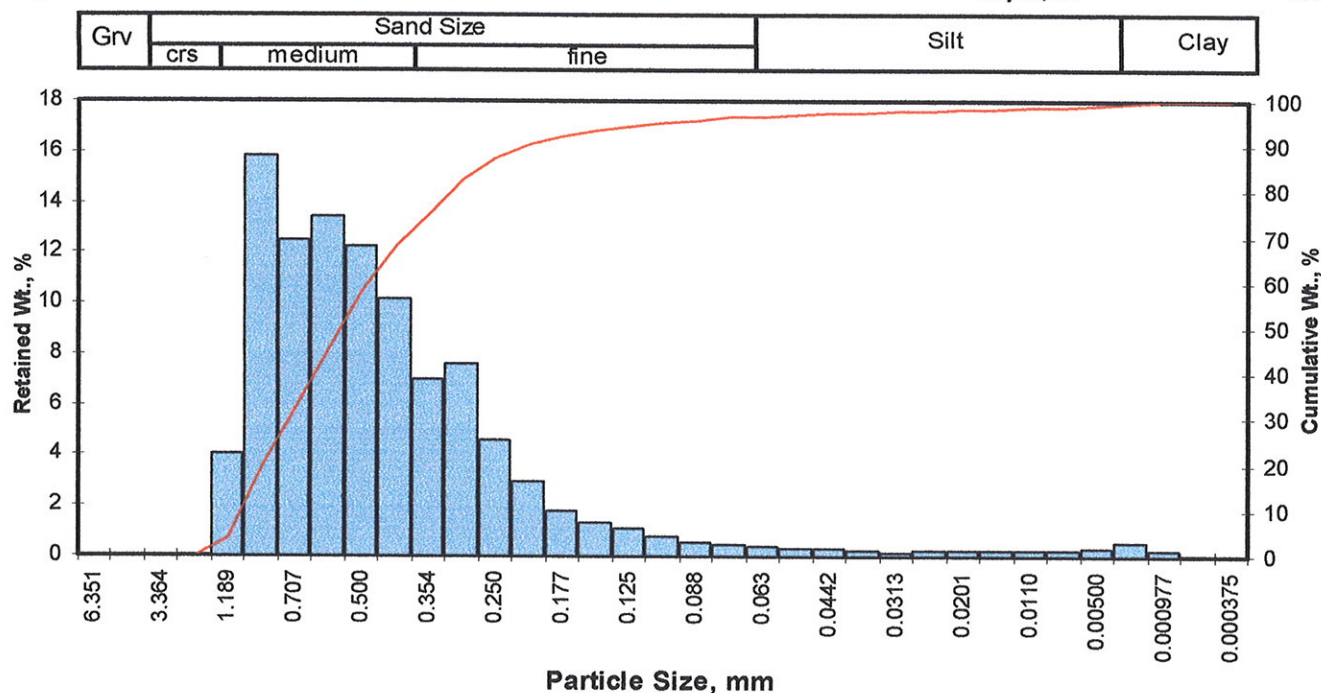
PTS File No: 34379

Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois

Sample ID: AI-6 (65-67)

Project No: GSI Job No. G-2876

Depth, ft: 65.8



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|--|-------------|---------------|-------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | Inches | Millimeters | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 5 | -0.22 | 0.0459 | 1.165 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 | 10 | -0.06 | 0.0411 | 1.044 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 | 16 | 0.13 | 0.0360 | 0.915 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 | 25 | 0.35 | 0.0308 | 0.783 |
| 0.0468 | 1.189 | -0.25 | 16 | 4.07 | 4.07 | 4.07 | 40 | 0.64 | 0.0252 | 0.641 |
| 0.0331 | 0.841 | 0.25 | 20 | 15.80 | 15.79 | 19.86 | 50 | 0.84 | 0.0220 | 0.560 |
| 0.0278 | 0.707 | 0.50 | 25 | 12.50 | 12.49 | 32.36 | 60 | 1.05 | 0.0190 | 0.484 |
| 0.0234 | 0.595 | 0.75 | 30 | 13.40 | 13.39 | 45.75 | 75 | 1.49 | 0.0140 | 0.355 |
| 0.0197 | 0.500 | 1.00 | 35 | 12.30 | 12.29 | 58.04 | 84 | 1.81 | 0.0112 | 0.284 |
| 0.0166 | 0.420 | 1.25 | 40 | 10.20 | 10.20 | 68.24 | 90 | 2.22 | 0.0084 | 0.214 |
| 0.0139 | 0.354 | 1.50 | 45 | 6.97 | 6.97 | 75.21 | 95 | 3.15 | 0.0044 | 0.112 |
| 0.0117 | 0.297 | 1.75 | 50 | 7.61 | 7.61 | 82.81 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 4.58 | 4.58 | 87.39 | | | | |
| 0.0083 | 0.210 | 2.25 | 70 | 2.95 | 2.95 | 90.34 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 1.79 | 1.79 | 92.13 | | | | |
| 0.0059 | 0.149 | 2.75 | 100 | 1.32 | 1.32 | 93.45 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 1.07 | 1.07 | 94.52 | | | | |
| 0.0041 | 0.105 | 3.25 | 140 | 0.78 | 0.78 | 95.30 | | | | |
| 0.0035 | 0.088 | 3.50 | 170 | 0.58 | 0.58 | 95.88 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 0.47 | 0.47 | 96.35 | | | | |
| 0.0025 | 0.063 | 4.00 | 230 | 0.38 | 0.38 | 96.73 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 0.31 | 0.31 | 97.04 | | | | |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.28 | 0.28 | 97.32 | | | | |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.22 | 0.22 | 97.54 | | | | |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.18 | 0.18 | 97.72 | | | | |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.23 | 0.23 | 97.95 | | | | |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.24 | 0.24 | 98.19 | | | | |
| 0.000615 | 0.0156 | 6.00 | | 0.23 | 0.23 | 98.42 | | | | |
| 0.000435 | 0.0110 | 6.50 | | 0.25 | 0.25 | 98.67 | | | | |
| 0.000308 | 0.00781 | 7.00 | | 0.22 | 0.22 | 98.89 | | | | |
| 0.000197 | 0.00500 | 7.65 | | 0.29 | 0.29 | 99.18 | | | | |
| 0.000077 | 0.00195 | 9.00 | | 0.58 | 0.58 | 99.76 | | | | |
| 0.000038 | 0.000977 | 10.00 | | 0.23 | 0.23 | 99.99 | | | | |
| 0.000019 | 0.000488 | 11.00 | | 0.02 | 0.01 | 100.00 | | | | |
| 0.000015 | 0.000375 | 11.38 | | 0.00 | 0.00 | 100.00 | | | | |
| TOTALS | | | | 100.00 | 100.00 | 100.00 | | | | |

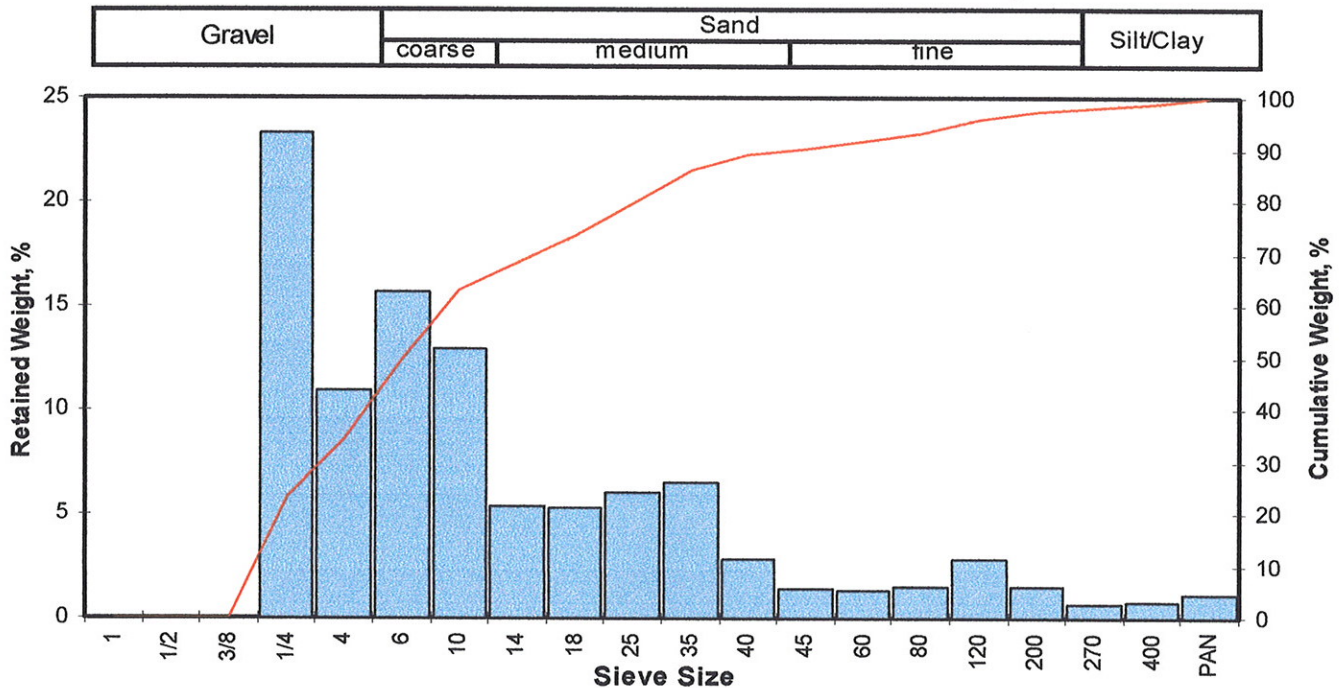
| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 0.84 | 0.84 | 0.84 |
| Median, in. | 0.0220 | 0.0220 | 0.0220 |
| Median, mm | 0.560 | 0.560 | 0.560 |
| Mean, phi | 0.81 | 0.97 | 0.93 |
| Mean, in. | 0.0224 | 0.0201 | 0.0207 |
| Mean, mm | 0.569 | 0.510 | 0.526 |
| Sorting | 1.484 | 0.844 | 0.933 |
| Skewness | 0.942 | 0.160 | 0.267 |
| Kurtosis | 0.258 | 1.001 | 1.214 |

| Grain Size Description | | Medium sand | |
|------------------------|--|----------------------------|--|
| (ASTM-USCS Scale) | | (based on Mean from Trask) | |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 68.24 |
| Fine Sand | 200 | 28.11 |
| Silt | >0.005 mm | 2.83 |
| Clay | <0.005 mm | 0.82 |
| Total | | 100 |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: A1-6 (85-87)
 Depth, ft: 85.8



| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent |
|---------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 4.60 | 23.29 | 23.29 |
| 0.1873 | 4.757 | -2.25 | 4 | 2.17 | 10.99 | 34.28 |
| 0.1324 | 3.364 | -1.75 | 6 | 3.10 | 15.70 | 49.97 |
| 0.0787 | 2.000 | -1.00 | 10 | 2.56 | 12.96 | 62.94 |
| 0.0557 | 1.414 | -0.50 | 14 | 1.06 | 5.37 | 68.30 |
| 0.0394 | 1.000 | 0.00 | 18 | 1.04 | 5.27 | 73.57 |
| 0.0278 | 0.707 | 0.50 | 25 | 1.19 | 6.03 | 79.59 |
| 0.0197 | 0.500 | 1.00 | 35 | 1.28 | 6.48 | 86.08 |
| 0.0166 | 0.420 | 1.25 | 40 | 0.56 | 2.84 | 88.91 |
| 0.0139 | 0.354 | 1.50 | 45 | 0.28 | 1.42 | 90.33 |
| 0.0098 | 0.250 | 2.00 | 60 | 0.26 | 1.32 | 91.65 |
| 0.0070 | 0.177 | 2.50 | 80 | 0.29 | 1.47 | 93.11 |
| 0.0049 | 0.125 | 3.00 | 120 | 0.56 | 2.84 | 95.95 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.30 | 1.52 | 97.47 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.13 | 0.66 | 98.13 |
| 0.0015 | 0.037 | 4.75 | 400 | 0.15 | 0.76 | 98.89 |
| PAN | | | | 0.22 | 1.11 | 100.00 |
| TOTALS | | | | 19.75 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -3.12 | 0.3431 | 8.714 |
| 10 | -3.00 | 0.3146 | 7.992 |
| 16 | -2.85 | 0.2836 | 7.204 |
| 25 | -2.60 | 0.2391 | 6.072 |
| 40 | -2.07 | 0.1651 | 4.192 |
| 50 | -1.75 | 0.1323 | 3.360 |
| 60 | -1.17 | 0.0886 | 2.250 |
| 75 | 0.12 | 0.0363 | 0.921 |
| 84 | 0.84 | 0.0220 | 0.559 |
| 90 | 1.44 | 0.0145 | 0.368 |
| 95 | 2.83 | 0.0055 | 0.140 |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | -1.75 | -1.75 | -1.75 |
| Median, in. | 0.1323 | 0.1323 | 0.1323 |
| Median, mm | 3.360 | 3.360 | 3.360 |
| Mean, phi | -1.81 | -1.00 | -1.25 |
| Mean, in. | 0.1377 | 0.0790 | 0.0938 |
| Mean, mm | 3.496 | 2.006 | 2.383 |
| Sorting | 2.568 | 1.844 | 1.825 |
| Skewness | 0.704 | 0.403 | 0.471 |
| Kurtosis | 0.338 | 0.615 | 0.897 |

| Grain Size Description | Coarse sand |
|------------------------|----------------------------|
| (ASTM-USCS Scale) | (based on Mean from Trask) |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 34.28 |
| Coarse Sand | 10 | 28.66 |
| Medium Sand | 40 | 25.97 |
| Fine Sand | 200 | 8.56 |
| Silt/Clay | <200 | 2.53 |
| Total | | 100 |

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

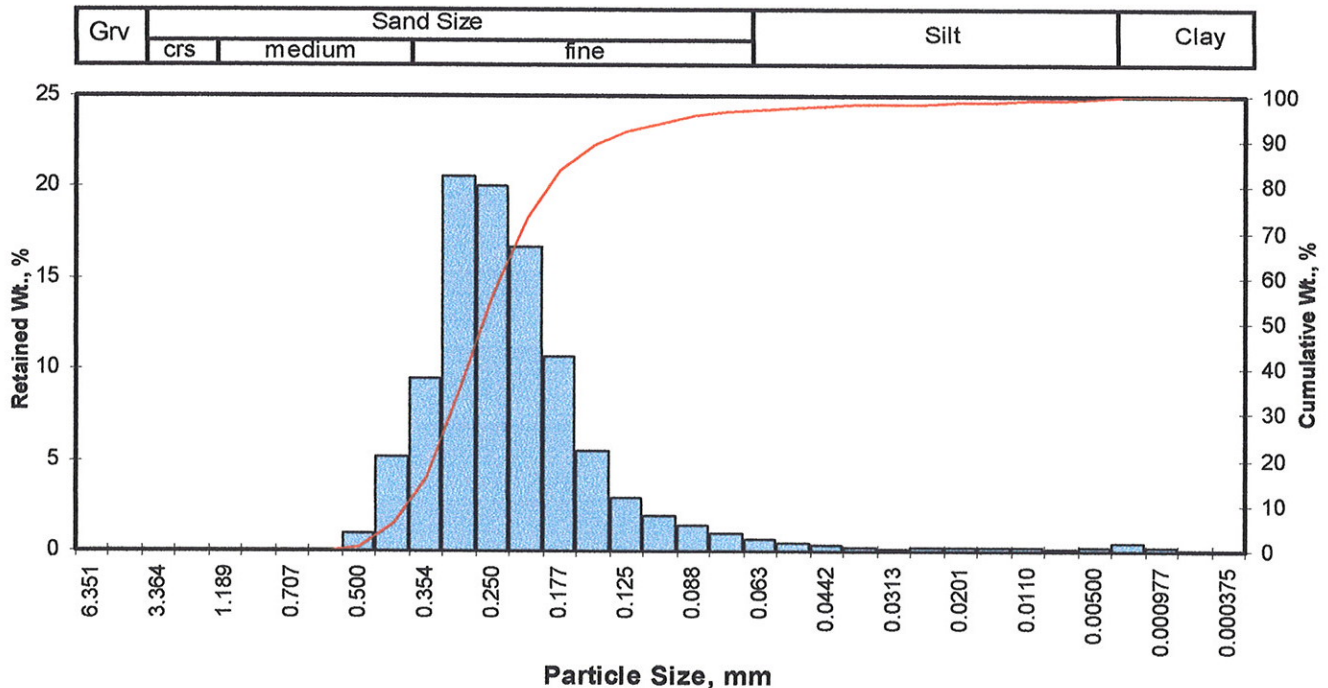
PROJECT NAME: DNAPL Characterization Study, Saugeat Area 1 Sites, Saugeat Illinois
PROJECT NO: GSI Job No. G-2876

| Sample ID | Depth, ft. | Mean Grain Size Description (1) | Median Grain Size mm | Particle Size Distribution, wt. percent | | | | | | Silt & Clay |
|-----------------|------------|---------------------------------|----------------------|---|-----------|--------|-------|-------|------|-------------|
| | | | | Gravel | Sand Size | | | Silt | Clay | |
| | | | | | Coarse | Medium | Fine | | | |
| AI-02 (55-57.5) | 55-57.5 | Fine sand | 0.264 | 0.00 | 0.00 | 6.24 | 90.29 | 2.82 | 0.64 | 3.47 |
| AI-03 (90-92.5) | 90-92.5 | Medium sand | 0.504 | 0.00 | 0.00 | 61.27 | 35.20 | 3.12 | 0.41 | 3.53 |
| A1-11 (40-42.5) | 40-42.5 | Medium sand | 0.698 | 19.52 | 9.24 | 38.00 | 24.93 | (2) | (2) | 8.32 |
| AI-11 (57.5-60) | 57.5-60 | Fine sand | 0.134 | 0.00 | 0.00 | 3.47 | 72.38 | 19.10 | 5.05 | 24.15 |

(1) Based on Mean from Trask
(2) Mechanical sieve does not differentiate silt/clay fraction

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: AI-02 (55-57.5)
 Depth, ft: 55-57.5



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 0.00 | 0.00 | 0.00 |
| 0.0331 | 0.841 | 0.25 | 20 | 0.00 | 0.00 | 0.00 |
| 0.0278 | 0.707 | 0.50 | 25 | 0.00 | 0.00 | 0.00 |
| 0.0234 | 0.595 | 0.75 | 30 | 0.01 | 0.01 | 0.01 |
| 0.0197 | 0.500 | 1.00 | 35 | 1.01 | 1.01 | 1.03 |
| 0.0166 | 0.420 | 1.25 | 40 | 5.21 | 5.22 | 6.24 |
| 0.0139 | 0.354 | 1.50 | 45 | 9.50 | 9.51 | 15.76 |
| 0.0117 | 0.297 | 1.75 | 50 | 20.60 | 20.63 | 36.39 |
| 0.0098 | 0.250 | 2.00 | 60 | 20.00 | 20.03 | 56.42 |
| 0.0083 | 0.210 | 2.25 | 70 | 16.70 | 16.72 | 73.14 |
| 0.0070 | 0.177 | 2.50 | 80 | 10.60 | 10.62 | 83.75 |
| 0.0059 | 0.149 | 2.75 | 100 | 5.45 | 5.46 | 89.21 |
| 0.0049 | 0.125 | 3.00 | 120 | 2.90 | 2.90 | 92.12 |
| 0.0041 | 0.105 | 3.25 | 140 | 1.95 | 1.95 | 94.07 |
| 0.0035 | 0.088 | 3.50 | 170 | 1.45 | 1.45 | 95.52 |
| 0.0029 | 0.074 | 3.75 | 200 | 1.01 | 1.01 | 96.53 |
| 0.0025 | 0.063 | 4.00 | 230 | 0.65 | 0.65 | 97.18 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.42 | 0.42 | 97.60 |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.30 | 0.30 | 97.90 |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.21 | 0.21 | 98.12 |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.15 | 0.15 | 98.27 |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.17 | 0.17 | 98.44 |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.17 | 0.17 | 98.61 |
| 0.000615 | 0.0156 | 6.00 | | 0.18 | 0.18 | 98.79 |
| 0.000435 | 0.0110 | 6.50 | | 0.20 | 0.20 | 98.99 |
| 0.000308 | 0.00781 | 7.00 | | 0.16 | 0.16 | 99.15 |
| 0.000197 | 0.00500 | 7.65 | | 0.21 | 0.21 | 99.36 |
| 0.000077 | 0.00195 | 9.00 | | 0.44 | 0.44 | 99.80 |
| 0.000038 | 0.000977 | 10.00 | | 0.19 | 0.19 | 99.99 |
| 0.000019 | 0.000488 | 11.00 | | 0.01 | 0.01 | 100.00 |
| 0.000015 | 0.000375 | 11.38 | | 0.00 | 0.00 | 100.00 |
| TOTALS | | | | 99.90 | 100.00 | 100.00 |

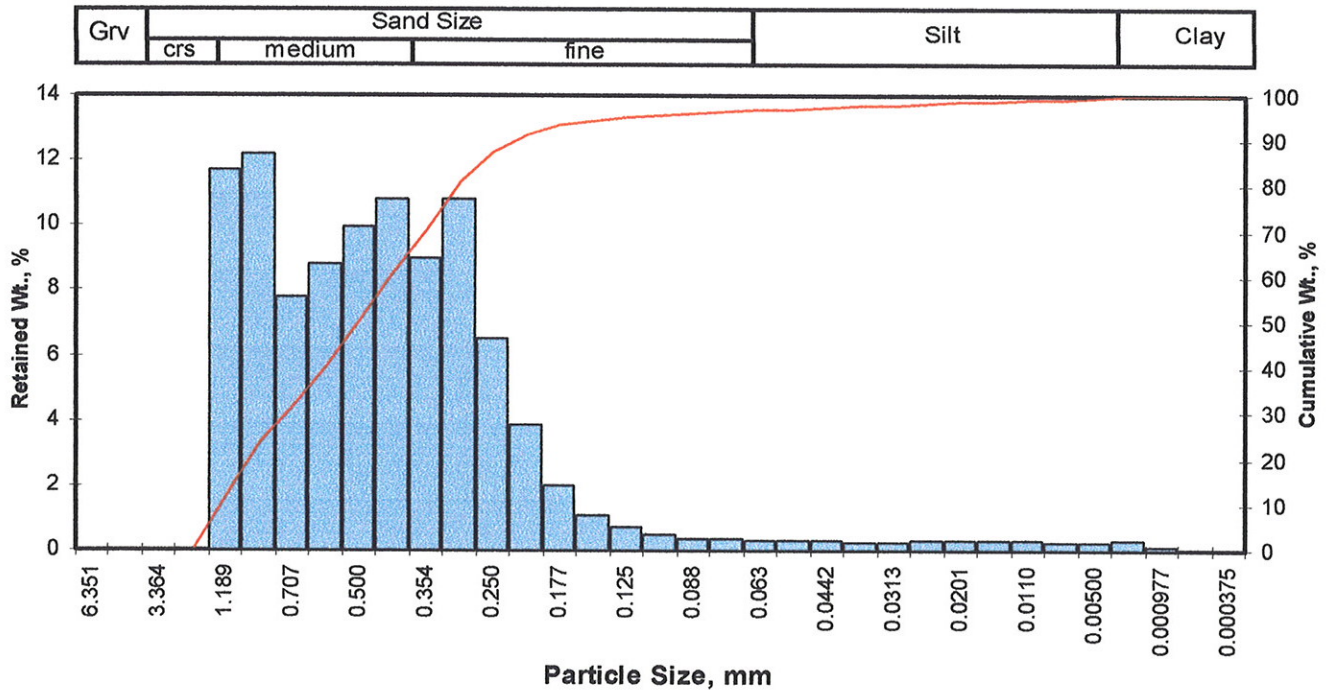
| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | 1.19 | 0.0173 | 0.438 |
| 10 | 1.35 | 0.0155 | 0.393 |
| 16 | 1.50 | 0.0139 | 0.353 |
| 25 | 1.61 | 0.0129 | 0.327 |
| 40 | 1.80 | 0.0113 | 0.288 |
| 50 | 1.92 | 0.0104 | 0.264 |
| 60 | 2.05 | 0.0095 | 0.241 |
| 75 | 2.29 | 0.0080 | 0.204 |
| 84 | 2.51 | 0.0069 | 0.175 |
| 90 | 2.82 | 0.0056 | 0.142 |
| 95 | 3.41 | 0.0037 | 0.094 |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 1.92 | 1.92 | 1.92 |
| Median, in. | 0.0104 | 0.0104 | 0.0104 |
| Median, mm | 0.264 | 0.264 | 0.264 |
| Mean, phi | 1.91 | 2.01 | 1.98 |
| Mean, in. | 0.0105 | 0.0098 | 0.0100 |
| Mean, mm | 0.266 | 0.249 | 0.254 |
| Sorting | 1.267 | 0.504 | 0.588 |
| Skewness | 0.977 | 0.173 | 0.258 |
| Kurtosis | 0.246 | 1.202 | 1.334 |

| Grain Size Description | Fine sand |
|------------------------|----------------------------|
| (ASTM-USCS Scale) | (based on Mean from Trask) |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 6.24 |
| Fine Sand | 200 | 90.29 |
| Silt | >0.005 mm | 2.82 |
| Clay | <0.005 mm | 0.64 |
| Total | | 100 |

Client: Groundwater Services, Inc. **PTS File No:** 34379
Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois **Sample ID:** AI-03 (90-92.5)
Project No: GSI Job No. G-2876 **Depth, ft:** 90-92.5



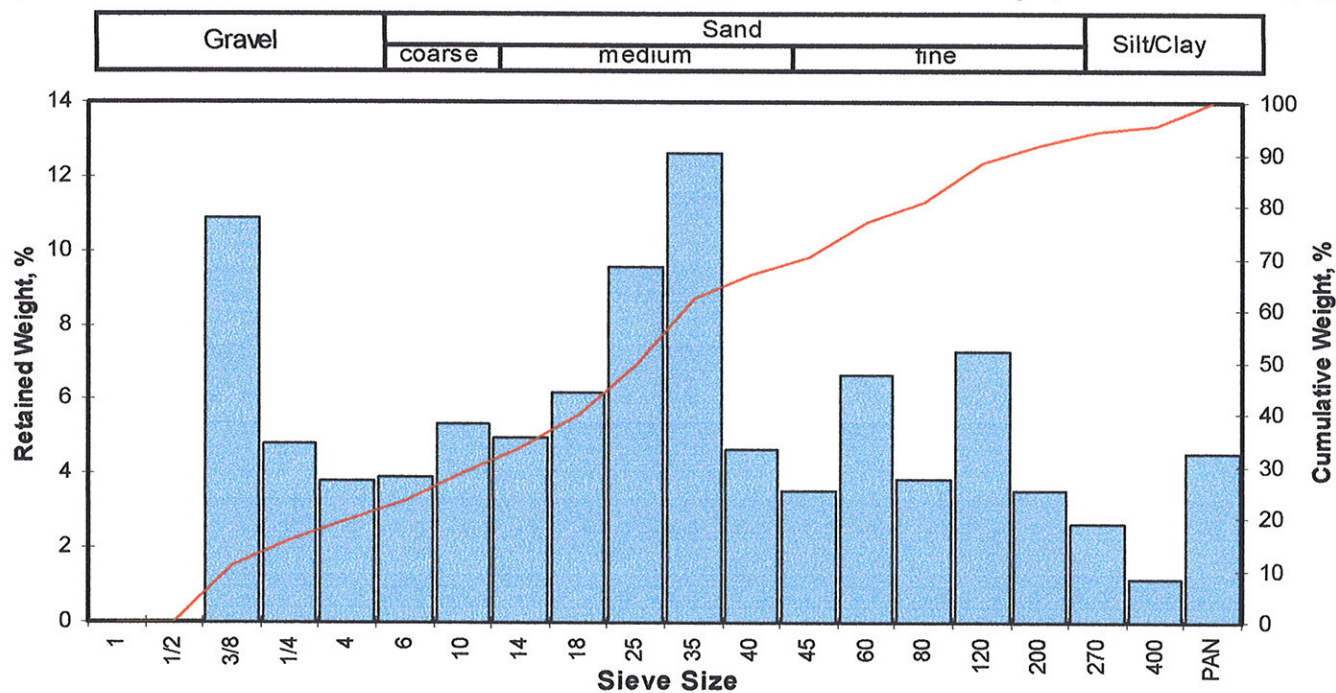
| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|--|-------------|---------------|-------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | Inches | Millimeters | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 5 | -0.68 | 0.0631 | 1.602 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 | 10 | -0.36 | 0.0505 | 1.283 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 | 16 | -0.07 | 0.0414 | 1.053 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 | 25 | 0.29 | 0.0323 | 0.821 |
| 0.0468 | 1.189 | -0.25 | 16 | 11.70 | 11.70 | 11.70 | 40 | 0.74 | 0.0236 | 0.600 |
| 0.0331 | 0.841 | 0.25 | 20 | 12.20 | 12.20 | 23.91 | 50 | 0.99 | 0.0198 | 0.504 |
| 0.0278 | 0.707 | 0.50 | 25 | 7.76 | 7.76 | 31.67 | 60 | 1.22 | 0.0169 | 0.429 |
| 0.0234 | 0.595 | 0.75 | 30 | 8.83 | 8.83 | 40.50 | 75 | 1.61 | 0.0129 | 0.328 |
| 0.0197 | 0.500 | 1.00 | 35 | 9.97 | 9.97 | 50.47 | 84 | 1.86 | 0.0108 | 0.275 |
| 0.0166 | 0.420 | 1.25 | 40 | 10.80 | 10.80 | 61.27 | 90 | 2.16 | 0.0088 | 0.224 |
| 0.0139 | 0.354 | 1.50 | 45 | 8.98 | 8.98 | 70.26 | 95 | 2.92 | 0.0052 | 0.132 |
| 0.0117 | 0.297 | 1.75 | 50 | 10.80 | 10.80 | 81.06 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 6.49 | 6.49 | 87.55 | | | | |
| 0.0083 | 0.210 | 2.25 | 70 | 3.87 | 3.87 | 91.42 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 2.01 | 2.01 | 93.43 | | | | |
| 0.0059 | 0.149 | 2.75 | 100 | 1.09 | 1.09 | 94.52 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 0.71 | 0.71 | 95.23 | | | | |
| 0.0041 | 0.105 | 3.25 | 140 | 0.50 | 0.50 | 95.73 | | | | |
| 0.0035 | 0.088 | 3.50 | 170 | 0.39 | 0.39 | 96.12 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 0.35 | 0.35 | 96.47 | | | | |
| 0.0025 | 0.063 | 4.00 | 230 | 0.33 | 0.33 | 96.80 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 0.30 | 0.30 | 97.10 | | | | |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.28 | 0.28 | 97.38 | | | | |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.26 | 0.26 | 97.64 | | | | |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.24 | 0.24 | 97.88 | | | | |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.31 | 0.31 | 98.19 | | | | |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.30 | 0.30 | 98.49 | | | | |
| 0.000615 | 0.0156 | 6.00 | | 0.30 | 0.30 | 98.79 | | | | |
| 0.000435 | 0.0110 | 6.50 | | 0.32 | 0.32 | 99.11 | | | | |
| 0.000308 | 0.00781 | 7.00 | | 0.24 | 0.24 | 99.35 | | | | |
| 0.000197 | 0.00500 | 7.65 | | 0.24 | 0.24 | 99.59 | | | | |
| 0.000077 | 0.00195 | 9.00 | | 0.31 | 0.31 | 99.90 | | | | |
| 0.000038 | 0.000977 | 10.00 | | 0.09 | 0.09 | 99.99 | | | | |
| 0.000019 | 0.000488 | 11.00 | | 0.01 | 0.01 | 100.00 | | | | |
| 0.000015 | 0.000375 | 11.38 | | 0.00 | 0.00 | 100.00 | | | | |
| TOTALS | | | | 100.00 | 100.00 | 100.00 | | | | |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 0.99 | 0.99 | 0.99 |
| Median, in. | 0.0198 | 0.0198 | 0.0198 |
| Median, mm | 0.504 | 0.504 | 0.504 |
| Mean, phi | 0.80 | 0.89 | 0.93 |
| Mean, in. | 0.0226 | 0.0212 | 0.0207 |
| Mean, mm | 0.574 | 0.538 | 0.526 |
| Sorting | 1.583 | 0.969 | 1.029 |
| Skewness | 1.029 | -0.097 | -0.012 |
| Kurtosis | 0.233 | 0.857 | 1.113 |

| Grain Size Description | | Medium sand | |
|------------------------|---------------------|----------------------------|--|
| (ASTM-USCS Scale) | | (based on Mean from Trask) | |
| | | | |
| Description | Retained on Sieve # | Weight Percent | |
| | | | |
| Gravel | 4 | 0.00 | |
| Coarse Sand | 10 | 0.00 | |
| Medium Sand | 40 | 61.27 | |
| Fine Sand | 200 | 35.20 | |
| Silt | >0.005 mm | 3.12 | |
| Clay | <0.005 mm | 0.41 | |
| Total | | 100 | |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: A1-11 (40-42.5)
 Depth, ft: 40-42.5



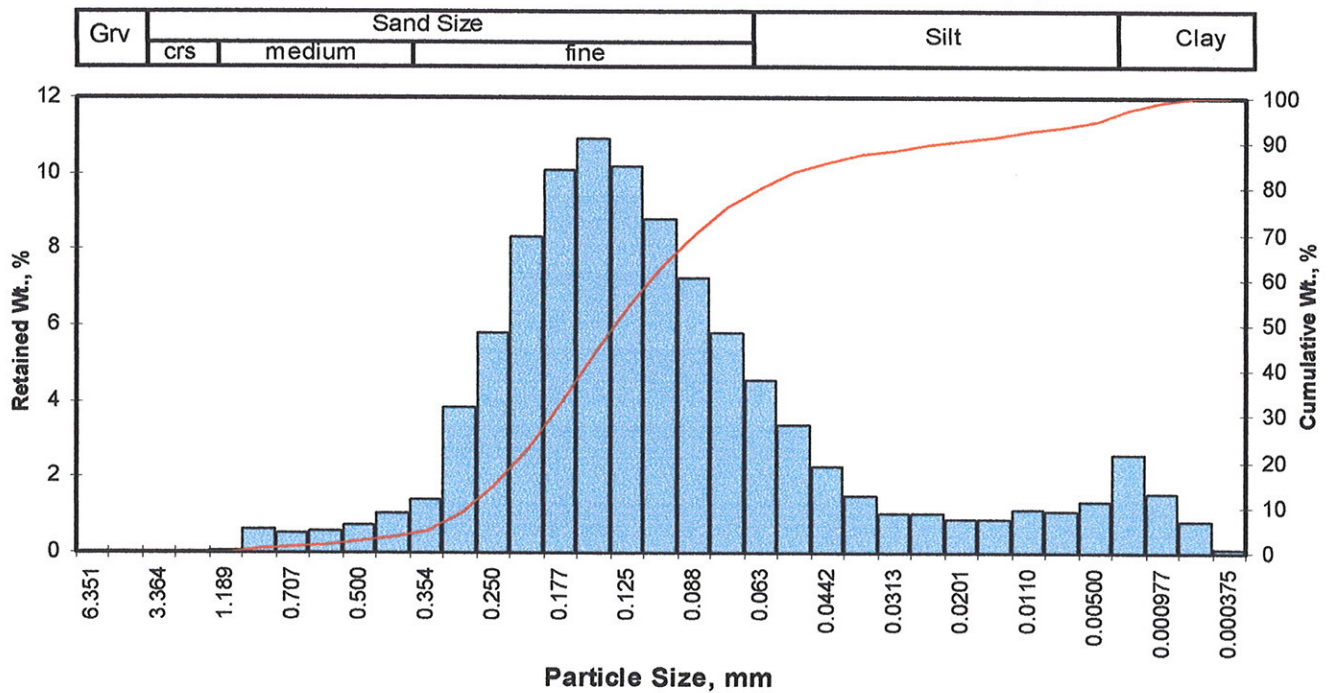
| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|---------------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|--|-----------|---------------|-------------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | | | Inches | Millimeters |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 | 5 | -3.46 | 0.4338 | 11.019 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 | 10 | -3.28 | 0.3824 | 9.713 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 7.10 | 10.88 | 10.88 | 16 | -2.63 | 0.2445 | 6.210 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 3.15 | 4.83 | 15.70 | 25 | -1.53 | 0.1137 | 2.888 |
| 0.1873 | 4.757 | -2.25 | 4 | 2.49 | 3.81 | 19.52 | 40 | 0.00 | 0.0393 | 0.997 |
| 0.1324 | 3.364 | -1.75 | 6 | 2.56 | 3.92 | 23.44 | 50 | 0.52 | 0.0275 | 0.698 |
| 0.0787 | 2.000 | -1.00 | 10 | 3.47 | 5.32 | 28.76 | 60 | 0.92 | 0.0209 | 0.530 |
| 0.0557 | 1.414 | -0.50 | 14 | 3.25 | 4.98 | 33.74 | 75 | 1.85 | 0.0109 | 0.277 |
| 0.0394 | 1.000 | 0.00 | 18 | 4.04 | 6.19 | 39.93 | 84 | 2.72 | 0.0060 | 0.152 |
| 0.0278 | 0.707 | 0.50 | 25 | 6.25 | 9.58 | 49.50 | 90 | 3.39 | 0.0037 | 0.095 |
| 0.0197 | 0.500 | 1.00 | 35 | 8.24 | 12.62 | 62.13 | 95 | 4.55 | 0.0017 | 0.043 |
| 0.0166 | 0.420 | 1.25 | 40 | 3.02 | 4.63 | 66.75 | | | | |
| 0.0139 | 0.354 | 1.50 | 45 | 2.32 | 3.55 | 70.31 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 4.34 | 6.65 | 76.96 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 2.53 | 3.88 | 80.83 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 4.77 | 7.31 | 88.14 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 2.31 | 3.54 | 91.68 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 1.72 | 2.64 | 94.32 | | | | |
| 0.0015 | 0.037 | 4.75 | 400 | 0.75 | 1.15 | 95.46 | | | | |
| | | | PAN | 2.96 | 4.54 | 100.00 | | | | |
| TOTALS | | | | | | | 65.27 | 100.00 | 100.00 | |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 0.52 | 0.52 | 0.52 |
| Median, in. | 0.0275 | 0.0275 | 0.0275 |
| Median, mm | 0.698 | 0.698 | 0.698 |
| Mean, phi | -0.66 | 0.04 | 0.20 |
| Mean, in. | 0.0623 | 0.0383 | 0.0343 |
| Mean, mm | 1.582 | 0.972 | 0.870 |
| Sorting | 3.230 | 2.676 | 2.551 |
| Skewness | 1.282 | -0.179 | -0.087 |
| Kurtosis | 0.136 | 0.497 | 0.970 |

| Grain Size Description | | Medium sand | |
|------------------------|---------------------|----------------------------|--|
| (ASTM-USCS Scale) | | (based on Mean from Trask) | |
| Description | Retained on Sieve # | Weight Percent | |
| Gravel | 4 | 19.52 | |
| Coarse Sand | 10 | 9.24 | |
| Medium Sand | 40 | 38.00 | |
| Fine Sand | 200 | 24.93 | |
| Silt/Clay | <200 | 8.32 | |
| Total | | 100 | |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: AI-11 (57.5-60)
 Depth, ft: 57.5-60



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 0.06 | 0.06 | 0.06 |
| 0.0331 | 0.841 | 0.25 | 20 | 0.61 | 0.61 | 0.67 |
| 0.0278 | 0.707 | 0.50 | 25 | 0.50 | 0.50 | 1.17 |
| 0.0234 | 0.595 | 0.75 | 30 | 0.58 | 0.58 | 1.75 |
| 0.0197 | 0.500 | 1.00 | 35 | 0.71 | 0.71 | 2.46 |
| 0.0166 | 0.420 | 1.25 | 40 | 1.01 | 1.01 | 3.47 |
| 0.0139 | 0.354 | 1.50 | 45 | 1.41 | 1.41 | 4.88 |
| 0.0117 | 0.297 | 1.75 | 50 | 3.82 | 3.82 | 8.70 |
| 0.0098 | 0.250 | 2.00 | 60 | 5.81 | 5.81 | 14.50 |
| 0.0083 | 0.210 | 2.25 | 70 | 8.34 | 8.34 | 22.84 |
| 0.0070 | 0.177 | 2.50 | 80 | 10.10 | 10.09 | 32.93 |
| 0.0059 | 0.149 | 2.75 | 100 | 10.90 | 10.89 | 43.83 |
| 0.0049 | 0.125 | 3.00 | 120 | 10.20 | 10.19 | 54.02 |
| 0.0041 | 0.105 | 3.25 | 140 | 8.80 | 8.79 | 62.82 |
| 0.0035 | 0.088 | 3.50 | 170 | 7.22 | 7.22 | 70.03 |
| 0.0029 | 0.074 | 3.75 | 200 | 5.82 | 5.82 | 75.85 |
| 0.0025 | 0.063 | 4.00 | 230 | 4.53 | 4.53 | 80.38 |
| 0.0021 | 0.053 | 4.25 | 270 | 3.34 | 3.34 | 83.71 |
| 0.00174 | 0.0442 | 4.50 | 325 | 2.27 | 2.27 | 85.98 |
| 0.00146 | 0.0372 | 4.75 | 400 | 1.51 | 1.51 | 87.49 |
| 0.00123 | 0.0313 | 5.00 | 450 | 1.05 | 1.05 | 88.54 |
| 0.000986 | 0.0250 | 5.32 | 500 | 1.03 | 1.03 | 89.57 |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.87 | 0.87 | 90.44 |
| 0.000615 | 0.0156 | 6.00 | | 0.87 | 0.87 | 91.31 |
| 0.000435 | 0.0110 | 6.50 | | 1.16 | 1.16 | 92.47 |
| 0.000308 | 0.00781 | 7.00 | | 1.11 | 1.11 | 93.58 |
| 0.000197 | 0.00500 | 7.65 | | 1.37 | 1.37 | 94.95 |
| 0.000077 | 0.00195 | 9.00 | | 2.59 | 2.59 | 97.54 |
| 0.000038 | 0.000977 | 10.00 | | 1.53 | 1.53 | 99.07 |
| 0.000019 | 0.000488 | 11.00 | | 0.85 | 0.85 | 99.92 |
| 0.000015 | 0.000375 | 11.38 | | 0.09 | 0.08 | 100.00 |
| TOTALS | | | | 100.10 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | 1.51 | 0.0138 | 0.352 |
| 10 | 1.81 | 0.0113 | 0.286 |
| 16 | 2.04 | 0.0095 | 0.242 |
| 25 | 2.30 | 0.0080 | 0.203 |
| 40 | 2.66 | 0.0062 | 0.158 |
| 50 | 2.90 | 0.0053 | 0.134 |
| 60 | 3.17 | 0.0044 | 0.111 |
| 75 | 3.71 | 0.0030 | 0.076 |
| 84 | 4.28 | 0.0020 | 0.051 |
| 90 | 5.48 | 0.0009 | 0.022 |
| 95 | 7.67 | 0.0002 | 0.005 |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 2.90 | 2.90 | 2.90 |
| Median, in. | 0.0053 | 0.0053 | 0.0053 |
| Median, mm | 0.134 | 0.134 | 0.134 |
| Mean, phi | 2.84 | 3.16 | 3.08 |
| Mean, in. | 0.0055 | 0.0044 | 0.0047 |
| Mean, mm | 0.139 | 0.112 | 0.119 |
| Sorting | 1.630 | 1.118 | 1.493 |
| Skewness | 0.928 | 0.234 | 0.391 |
| Kurtosis | 0.240 | 1.756 | 1.792 |

| Grain Size Description | Fine sand |
|------------------------|----------------------------|
| (ASTM-USCS Scale) | (based on Mean from Trask) |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 3.47 |
| Fine Sand | 200 | 72.38 |
| Silt | >0.005 mm | 19.10 |
| Clay | <0.005 mm | 5.05 |
| Total | | 100 |

PARTICLE SIZE SUMMARY

(METHODODOLOGY: ASTM D422/D4464M)

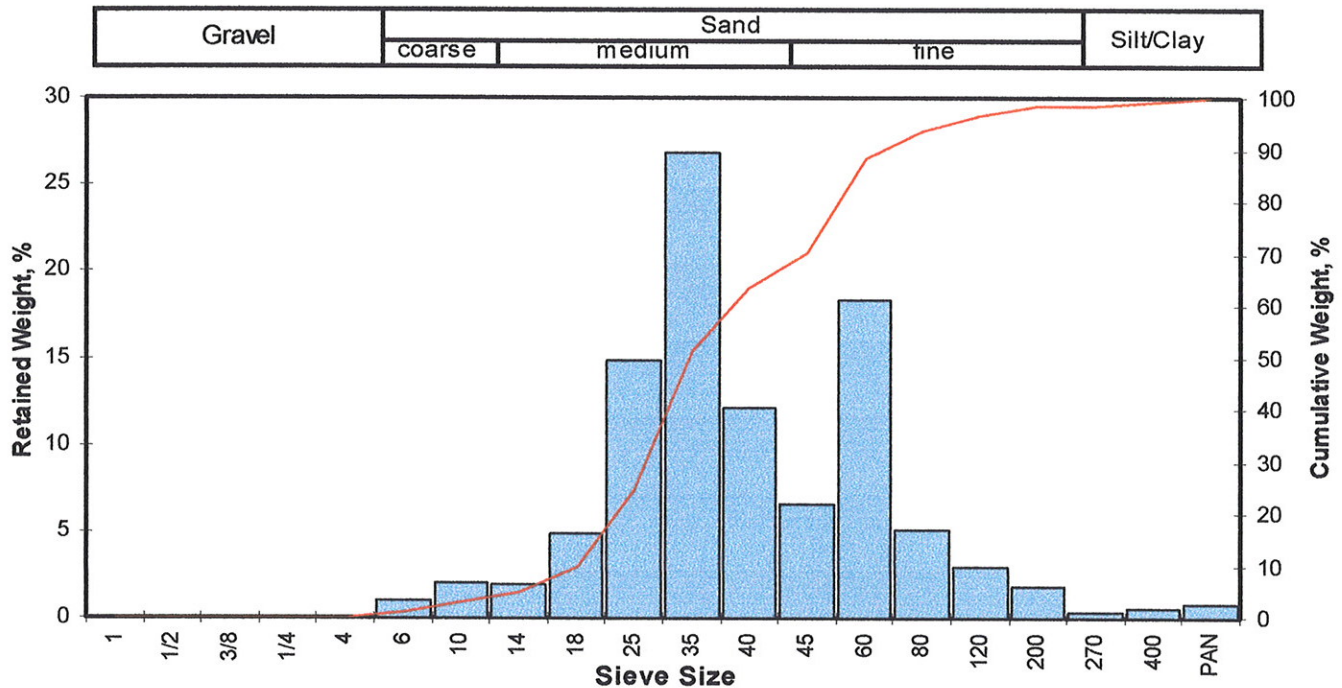
PROJECT NAME: DNAPL Characterization Study, Sauguet Area 1 Sites, Sauguet Illinois
PROJECT NO: GSI Job No. G-2876

| Sample ID | Depth, ft. | Mean Grain Size Description (1) | Median Grain Size mm | Particle Size Distribution, wt. percent | | | | | | Silt & Clay |
|-----------------|------------|---------------------------------|----------------------|---|-----------|--------|-------|-------|-------|-------------|
| | | | | Gravel | Sand Size | | | Silt | Clay | |
| | | | | | Coarse | Medium | Fine | | | |
| A1-02 (35-37.5) | 36.3 | Medium sand | 0.510 | 0.00 | 3.00 | 60.57 | 34.74 | (2) | (2) | 1.69 |
| A1-02 (85-87.5) | 85.8 | Medium sand | 0.983 | 10.25 | 15.19 | 67.69 | 6.57 | (2) | (2) | 0.30 |
| A1-03 (65-67) | 66.3 | Medium sand | 0.516 | 0.00 | 0.00 | 68.08 | 25.72 | 4.45 | 1.75 | 6.20 |
| A1-04 (15-17) | 16.3 | Silt | 0.039 | 0.00 | 0.00 | 0.00 | 17.71 | 68.15 | 14.14 | 82.29 |
| A1-04 (25-27) | 26.3 | Fine sand | 0.088 | 0.00 | 0.00 | 0.00 | 53.82 | 33.26 | 12.92 | 46.18 |
| A1-04 (55-57) | 56.3 | Fine sand | 0.199 | 0.00 | 0.00 | 2.38 | 85.61 | 8.19 | 3.83 | 12.02 |
| A1-04 (75-77) | 76.3 | Medium sand | 0.561 | 0.00 | 0.00 | 69.75 | 24.63 | 4.14 | 1.48 | 5.61 |
| A1-14 (75-77) | 76.3 | Medium sand | 0.447 | 0.00 | 0.00 | 53.24 | 41.90 | 3.95 | 0.92 | 4.86 |

(1) Based on Mean from Trask
(2) Mechanical sieve does not differentiate silt/clay fraction

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: A1-02 (35-37.5)
 Depth, ft: 36.3



| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent |
|---------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.13 | 1.00 | 1.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.26 | 2.00 | 3.00 |
| 0.0557 | 1.414 | -0.50 | 14 | 0.25 | 1.92 | 4.92 |
| 0.0394 | 1.000 | 0.00 | 18 | 0.64 | 4.92 | 9.84 |
| 0.0278 | 0.707 | 0.50 | 25 | 1.93 | 14.83 | 24.67 |
| 0.0197 | 0.500 | 1.00 | 35 | 3.49 | 26.83 | 51.50 |
| 0.0166 | 0.420 | 1.25 | 40 | 1.57 | 12.07 | 63.57 |
| 0.0139 | 0.354 | 1.50 | 45 | 0.85 | 6.53 | 70.10 |
| 0.0098 | 0.250 | 2.00 | 60 | 2.38 | 18.29 | 88.39 |
| 0.0070 | 0.177 | 2.50 | 80 | 0.66 | 5.07 | 93.47 |
| 0.0049 | 0.125 | 3.00 | 120 | 0.39 | 3.00 | 96.46 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.24 | 1.84 | 98.31 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.04 | 0.31 | 98.62 |
| 0.0015 | 0.037 | 4.75 | 400 | 0.07 | 0.54 | 99.15 |
| PAN | | | | 0.11 | 0.85 | 100.00 |
| TOTALS | | | | 13.01 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -0.49 | 0.0554 | 1.406 |
| 10 | 0.01 | 0.0392 | 0.996 |
| 16 | 0.21 | 0.0341 | 0.866 |
| 25 | 0.51 | 0.0277 | 0.704 |
| 40 | 0.79 | 0.0228 | 0.580 |
| 50 | 0.97 | 0.0201 | 0.510 |
| 60 | 1.18 | 0.0174 | 0.443 |
| 75 | 1.63 | 0.0127 | 0.322 |
| 84 | 1.88 | 0.0107 | 0.272 |
| 90 | 2.16 | 0.0088 | 0.224 |
| 95 | 2.76 | 0.0058 | 0.148 |

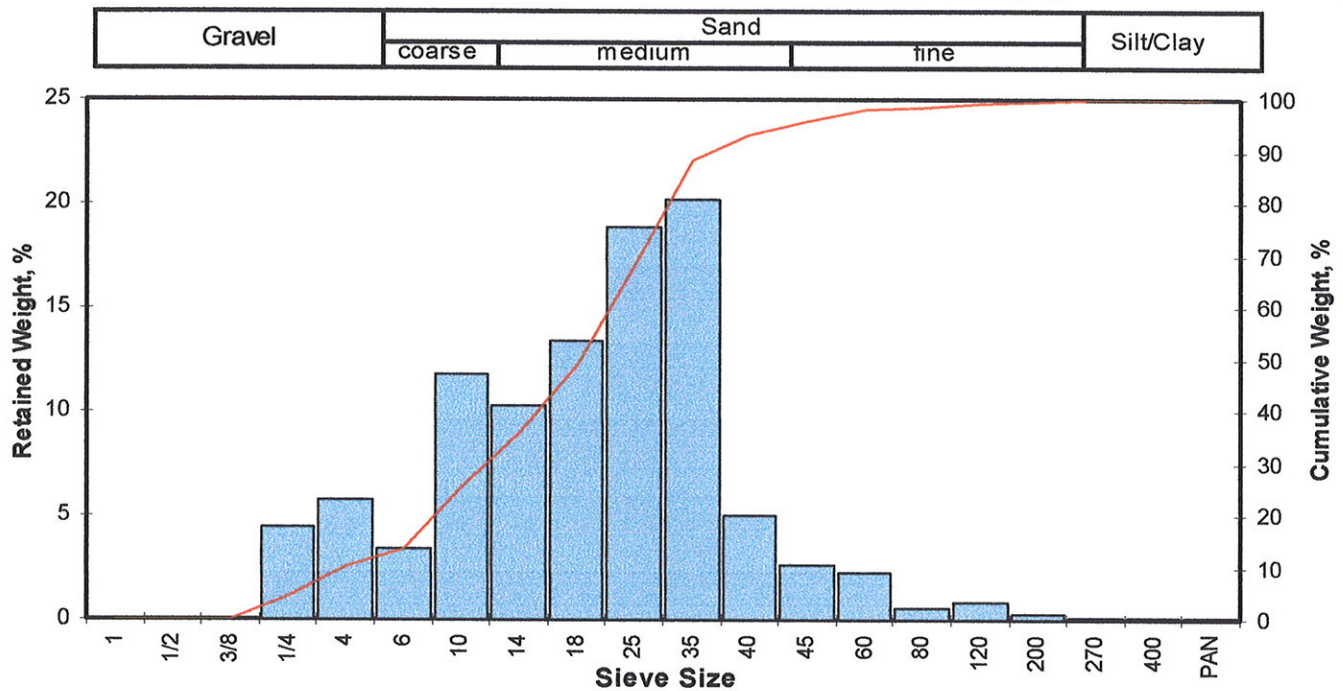
| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 0.97 | 0.97 | 0.97 |
| Median, in. | 0.0201 | 0.0201 | 0.0201 |
| Median, mm | 0.510 | 0.510 | 0.510 |
| Mean, phi | 0.96 | 1.04 | 1.02 |
| Mean, in. | 0.0202 | 0.0191 | 0.0194 |
| Mean, mm | 0.513 | 0.485 | 0.493 |
| Sorting | 1.478 | 0.836 | 0.910 |
| Skewness | 0.934 | 0.086 | 0.092 |
| Kurtosis | 0.247 | 0.942 | 1.180 |

| Grain Size Description | Medium sand |
|------------------------|----------------------------|
| (ASTM-USCS Scale) | (based on Mean from Trask) |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 3.00 |
| Medium Sand | 40 | 60.57 |
| Fine Sand | 200 | 34.74 |
| Silt/Clay | <200 | 1.69 |
| Total | | 100 |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

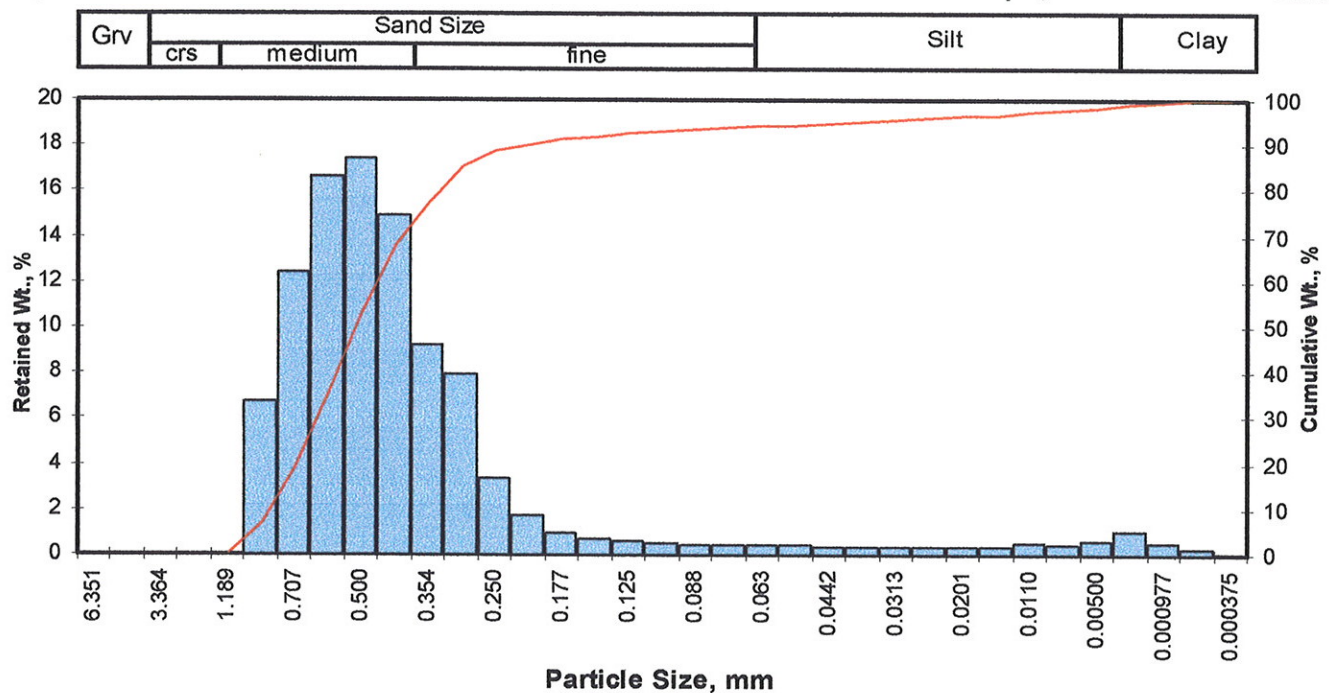
PTS File No: 34379
 Sample ID: AI-02 (85-87.5)
 Depth, ft: 85.8



| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|-------------|----------------------------|----------------|---------------------|-----------------------------|----------------------------|--|-----------|---------------|-------|------------------------|-------|-------------|-----------|-------------------|------|----------------------------|------|-------------|--------|--------|--------|-------------|-------|---------------------|----------------|-----------|-------|-------|-------|-------------|--------|--------|--------|-------------|-------|-------|-------|-----------|-------|-------|-------|-----------|-------|--------|--------|----------|-------|-------|-------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | Inches | Millimeters | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 | 5 | -2.63 | 0.2434 | 6.181 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 | 10 | -2.27 | 0.1896 | 4.816 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 | 16 | -1.60 | 0.1194 | 3.032 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 1.94 | 4.46 | 4.46 | 25 | -1.03 | 0.0803 | 2.039 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.1873 | 4.757 | -2.25 | 4 | 2.52 | 5.79 | 10.25 | 40 | -0.34 | 0.0498 | 1.265 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.1324 | 3.364 | -1.75 | 6 | 1.48 | 3.40 | 13.65 | 50 | 0.02 | 0.0387 | 0.983 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0787 | 2.000 | -1.00 | 10 | 5.13 | 11.79 | 25.44 | 60 | 0.29 | 0.0322 | 0.818 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0557 | 1.414 | -0.50 | 14 | 4.47 | 10.27 | 35.71 | 75 | 0.67 | 0.0247 | 0.626 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0394 | 1.000 | 0.00 | 18 | 5.81 | 13.35 | 49.06 | 84 | 0.90 | 0.0211 | 0.537 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0278 | 0.707 | 0.50 | 25 | 8.22 | 18.89 | 67.95 | 90 | 1.09 | 0.0185 | 0.469 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0197 | 0.500 | 1.00 | 35 | 8.79 | 20.20 | 88.14 | 95 | 1.43 | 0.0146 | 0.371 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0166 | 0.420 | 1.25 | 40 | 2.17 | 4.99 | 93.13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0139 | 0.354 | 1.50 | 45 | 1.13 | 2.60 | 95.73 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 0.98 | 2.25 | 97.98 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 0.25 | 0.57 | 98.55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 0.36 | 0.83 | 99.38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 0.14 | 0.32 | 99.70 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 0.06 | 0.14 | 99.84 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0015 | 0.037 | 4.75 | 400 | 0.04 | 0.09 | 99.93 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | PAN | 0.03 | 0.07 | 100.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | <table><tr><th>Measure</th><th>Trask</th><th>Inman</th><th>Folk-Ward</th></tr><tr><td>Median, phi</td><td>0.02</td><td>0.02</td><td>0.02</td></tr><tr><td>Median, in.</td><td>0.0387</td><td>0.0387</td><td>0.0387</td></tr><tr><td>Median, mm</td><td>0.983</td><td>0.983</td><td>0.983</td></tr><tr><td>Mean, phi</td><td>-0.41</td><td>-0.35</td><td>-0.23</td></tr><tr><td>Mean, in.</td><td>0.0525</td><td>0.0502</td><td>0.0460</td></tr><tr><td>Mean, mm</td><td>1.333</td><td>1.276</td><td>1.170</td></tr><tr><td>Sorting</td><td>1.804</td><td>1.249</td><td>1.239</td></tr><tr><td>Skewness</td><td>1.150</td><td>-0.301</td><td>-0.304</td></tr><tr><td>Kurtosis</td><td>0.162</td><td>0.625</td><td>0.977</td></tr></table> | | | | Measure | Trask | Inman | Folk-Ward | Median, phi | 0.02 | 0.02 | 0.02 | Median, in. | 0.0387 | 0.0387 | 0.0387 | Median, mm | 0.983 | 0.983 | 0.983 | Mean, phi | -0.41 | -0.35 | -0.23 | Mean, in. | 0.0525 | 0.0502 | 0.0460 | Mean, mm | 1.333 | 1.276 | 1.170 | Sorting | 1.804 | 1.249 | 1.239 | Skewness | 1.150 | -0.301 | -0.304 | Kurtosis | 0.162 | 0.625 | 0.977 |
| Measure | Trask | Inman | Folk-Ward | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Median, phi | 0.02 | 0.02 | 0.02 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Median, in. | 0.0387 | 0.0387 | 0.0387 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Median, mm | 0.983 | 0.983 | 0.983 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mean, phi | -0.41 | -0.35 | -0.23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mean, in. | 0.0525 | 0.0502 | 0.0460 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mean, mm | 1.333 | 1.276 | 1.170 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sorting | 1.804 | 1.249 | 1.239 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Skewness | 1.150 | -0.301 | -0.304 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kurtosis | 0.162 | 0.625 | 0.977 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | <table><tr><th colspan="2">Grain Size Description</th><th colspan="2">Medium sand</th></tr><tr><th colspan="2">(ASTM-USCS Scale)</th><th colspan="2">(based on Mean from Trask)</th></tr><tr><th colspan="4"></th></tr><tr><th colspan="2">Description</th><th>Retained on Sieve #</th><th>Weight Percent</th></tr><tr><td colspan="2">Gravel</td><td>4</td><td>10.25</td></tr><tr><td colspan="2">Coarse Sand</td><td>10</td><td>15.19</td></tr><tr><td colspan="2">Medium Sand</td><td>40</td><td>67.69</td></tr><tr><td colspan="2">Fine Sand</td><td>200</td><td>6.57</td></tr><tr><td colspan="2">Silt/Clay</td><td><200</td><td>0.30</td></tr><tr><td colspan="2">TOTALS</td><td>Total</td><td>100</td></tr></table> | | | | Grain Size Description | | Medium sand | | (ASTM-USCS Scale) | | (based on Mean from Trask) | | | | | | Description | | Retained on Sieve # | Weight Percent | Gravel | | 4 | 10.25 | Coarse Sand | | 10 | 15.19 | Medium Sand | | 40 | 67.69 | Fine Sand | | 200 | 6.57 | Silt/Clay | | <200 | 0.30 | TOTALS | | Total | 100 |
| Grain Size Description | | Medium sand | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (ASTM-USCS Scale) | | (based on Mean from Trask) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Description | | Retained on Sieve # | Weight Percent | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | | 4 | 10.25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Coarse Sand | | 10 | 15.19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Medium Sand | | 40 | 67.69 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fine Sand | | 200 | 6.57 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Silt/Clay | | <200 | 0.30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TOTALS | | Total | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: AI-03 (65-67)
 Depth, ft: 66.30



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|---------------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 0.00 | 0.00 | 0.00 |
| 0.0331 | 0.841 | 0.25 | 20 | 6.75 | 6.74 | 6.75 |
| 0.0278 | 0.707 | 0.50 | 25 | 12.40 | 12.39 | 19.13 |
| 0.0234 | 0.595 | 0.75 | 30 | 16.70 | 16.68 | 35.81 |
| 0.0197 | 0.500 | 1.00 | 35 | 17.40 | 17.38 | 53.19 |
| 0.0166 | 0.420 | 1.25 | 40 | 14.90 | 14.88 | 68.08 |
| 0.0139 | 0.354 | 1.50 | 45 | 9.24 | 9.23 | 77.31 |
| 0.0117 | 0.297 | 1.75 | 50 | 7.91 | 7.90 | 85.21 |
| 0.0098 | 0.250 | 2.00 | 60 | 3.39 | 3.39 | 88.59 |
| 0.0083 | 0.210 | 2.25 | 70 | 1.71 | 1.71 | 90.30 |
| 0.0070 | 0.177 | 2.50 | 80 | 0.95 | 0.95 | 91.25 |
| 0.0059 | 0.149 | 2.75 | 100 | 0.68 | 0.68 | 91.93 |
| 0.0049 | 0.125 | 3.00 | 120 | 0.57 | 0.57 | 92.50 |
| 0.0041 | 0.105 | 3.25 | 140 | 0.49 | 0.49 | 92.99 |
| 0.0035 | 0.088 | 3.50 | 170 | 0.42 | 0.42 | 93.41 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.39 | 0.39 | 93.80 |
| 0.0025 | 0.063 | 4.00 | 230 | 0.41 | 0.41 | 94.21 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.40 | 0.40 | 94.61 |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.36 | 0.36 | 94.97 |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.34 | 0.34 | 95.31 |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.32 | 0.32 | 95.62 |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.38 | 0.38 | 96.00 |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.36 | 0.36 | 96.36 |
| 0.000615 | 0.0156 | 6.00 | | 0.38 | 0.38 | 96.74 |
| 0.000435 | 0.0110 | 6.50 | | 0.48 | 0.48 | 97.22 |
| 0.000308 | 0.00781 | 7.00 | | 0.46 | 0.46 | 97.68 |
| 0.000197 | 0.00500 | 7.65 | | 0.57 | 0.57 | 98.25 |
| 0.000077 | 0.00195 | 9.00 | | 1.01 | 1.01 | 99.26 |
| 0.000038 | 0.000977 | 10.00 | | 0.49 | 0.49 | 99.75 |
| 0.000019 | 0.000488 | 11.00 | | 0.23 | 0.23 | 99.98 |
| 0.000015 | 0.000375 | 11.38 | | 0.02 | 0.02 | 100.00 |
| TOTALS | | | | 100.10 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | 0.12 | 0.0362 | 0.920 |
| 10 | 0.32 | 0.0316 | 0.803 |
| 16 | 0.44 | 0.0291 | 0.739 |
| 25 | 0.59 | 0.0262 | 0.665 |
| 40 | 0.81 | 0.0225 | 0.570 |
| 50 | 0.95 | 0.0203 | 0.516 |
| 60 | 1.11 | 0.0182 | 0.462 |
| 75 | 1.44 | 0.0145 | 0.369 |
| 84 | 1.71 | 0.0120 | 0.305 |
| 90 | 2.21 | 0.0085 | 0.217 |
| 95 | 4.53 | 0.0017 | 0.043 |

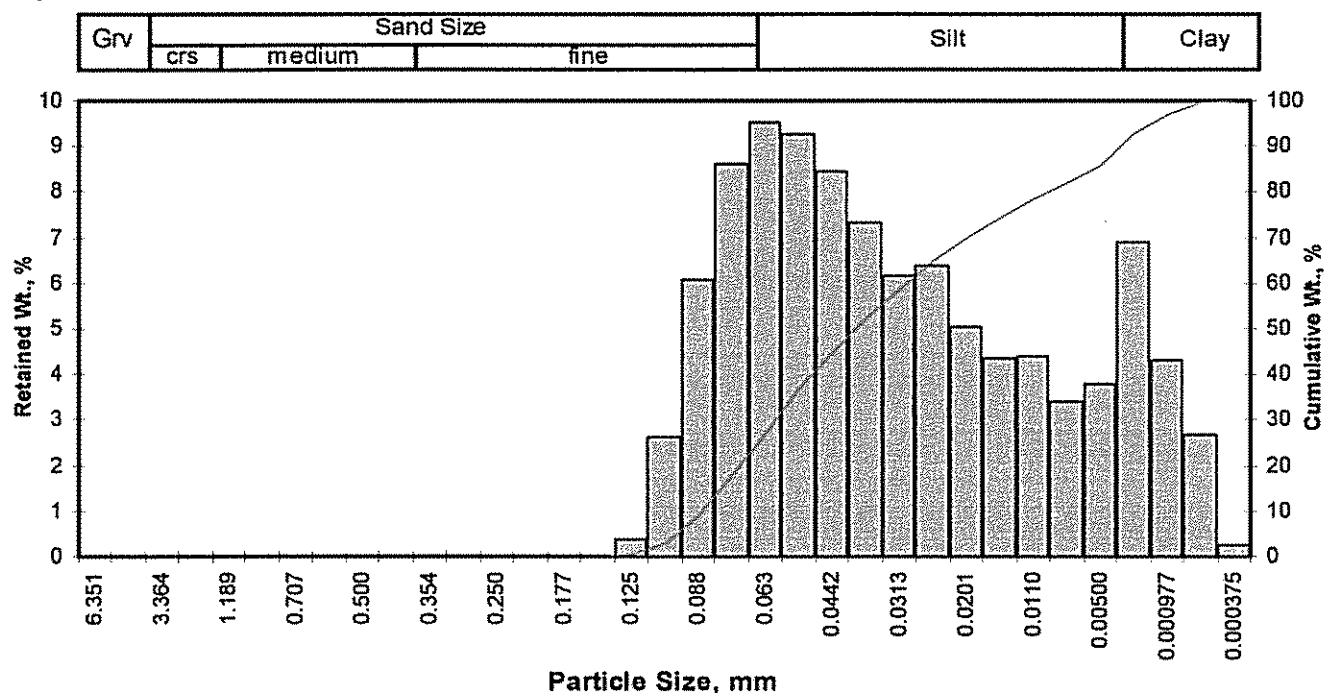
| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 0.95 | 0.95 | 0.95 |
| Median, in. | 0.0203 | 0.0203 | 0.0203 |
| Median, mm | 0.516 | 0.516 | 0.516 |
| Mean, phi | 0.95 | 1.07 | 1.03 |
| Mean, in. | 0.0204 | 0.0187 | 0.0192 |
| Mean, mm | 0.517 | 0.475 | 0.488 |
| Sorting | 1.342 | 0.638 | 0.986 |
| Skewness | 0.960 | 0.189 | 0.405 |
| Kurtosis | 0.252 | 2.455 | 2.125 |

| Grain Size Description | Medium sand |
|------------------------|----------------------------|
| (ASTM-USCS Scale) | (based on Mean from Trask) |

| Description | Retained on Sieve # | Weight Percent |
|--------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 68.08 |
| Fine Sand | 200 | 25.72 |
| Silt | >0.005 mm | 4.45 |
| Clay | <0.005 mm | 1.75 |
| Total | | 100 |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: AI-04 (15-17)
 Depth, ft: 16.30

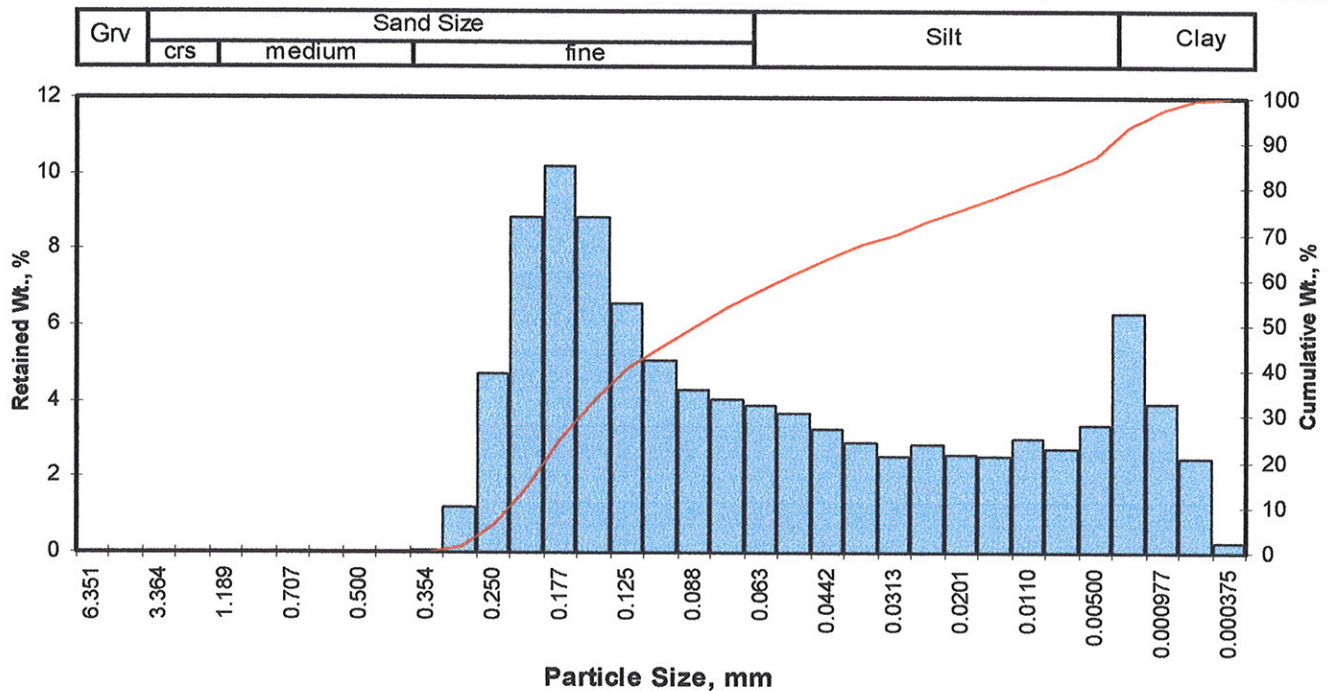


| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|----------|-------------|------------------|-------------|----------------------------|---------------------------------|----------------------------------|--|--------------|---------------|-------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | | Inches | Millimeters | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 5 | 3.33 | 0.0039 | 0.099 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 | 10 | 3.53 | 0.0034 | 0.087 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 | 16 | 3.70 | 0.0030 | 0.077 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 | 25 | 3.94 | 0.0026 | 0.065 |
| 0.0468 | 1.189 | -0.25 | 16 | 0.00 | 0.00 | 0.00 | 40 | 4.35 | 0.0019 | 0.049 |
| 0.0331 | 0.841 | 0.25 | 20 | 0.00 | 0.00 | 0.00 | 50 | 4.67 | 0.0015 | 0.039 |
| 0.0278 | 0.707 | 0.50 | 25 | 0.00 | 0.00 | 0.00 | 60 | 5.08 | 0.0012 | 0.030 |
| 0.0234 | 0.595 | 0.75 | 30 | 0.00 | 0.00 | 0.00 | 75 | 6.09 | 0.0006 | 0.015 |
| 0.0197 | 0.500 | 1.00 | 35 | 0.00 | 0.00 | 0.00 | 84 | 7.33 | 0.0002 | 0.006 |
| 0.0166 | 0.420 | 1.25 | 40 | 0.00 | 0.00 | 0.00 | 90 | 8.46 | 0.0001 | 0.003 |
| 0.0139 | 0.354 | 1.50 | 45 | 0.00 | 0.00 | 0.00 | 95 | 9.53 | 0.0001 | 0.001 |
| 0.0117 | 0.297 | 1.75 | 50 | 0.00 | 0.00 | 0.00 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 0.00 | 0.00 | 0.00 | | | | |
| 0.0083 | 0.210 | 2.25 | 70 | 0.00 | 0.00 | 0.00 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 0.00 | 0.00 | 0.00 | | | | |
| 0.0059 | 0.149 | 2.75 | 100 | 0.01 | 0.01 | 0.01 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 0.39 | 0.39 | 0.40 | | | | |
| 0.0041 | 0.105 | 3.25 | 140 | 2.61 | 2.61 | 3.01 | | | | |
| 0.0035 | 0.088 | 3.50 | 170 | 6.06 | 6.06 | 9.07 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 8.64 | 8.64 | 17.71 | | | | |
| 0.0025 | 0.063 | 4.00 | 230 | 9.52 | 9.52 | 27.23 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 9.28 | 9.28 | 36.51 | | | | |
| 0.00174 | 0.0442 | 4.50 | 325 | 8.46 | 8.46 | 44.97 | | | | |
| 0.00146 | 0.0372 | 4.75 | 400 | 7.34 | 7.34 | 52.31 | | | | |
| 0.00123 | 0.0313 | 5.00 | 450 | 6.15 | 6.15 | 58.46 | | | | |
| 0.000986 | 0.0250 | 5.32 | 500 | 6.40 | 6.40 | 64.86 | | | | |
| 0.000790 | 0.0201 | 5.64 | 635 | 5.05 | 5.05 | 69.91 | | | | |
| 0.000615 | 0.0156 | 6.00 | | 4.34 | 4.34 | 74.25 | | | | |
| 0.000435 | 0.0110 | 6.50 | | 4.39 | 4.39 | 78.64 | | | | |
| 0.000308 | 0.00781 | 7.00 | | 3.42 | 3.42 | 82.06 | | | | |
| 0.000197 | 0.00500 | 7.65 | | 3.80 | 3.80 | 85.86 | | | | |
| 0.000077 | 0.00195 | 9.00 | | 6.88 | 6.88 | 92.74 | | | | |
| 0.000038 | 0.000977 | 10.00 | | 4.30 | 4.30 | 97.04 | | | | |
| 0.000019 | 0.000488 | 11.00 | | 2.68 | 2.68 | 99.72 | | | | |
| 0.000015 | 0.000375 | 11.38 | | 0.28 | 0.28 | 100.00 | | | | |
| TOTALS | | | | 100.00 | 100.00 | 100.00 | | | | |

| Measure | Trask | Inman | Folk-Ward |
|---|--------|------------------------------------|-----------|
| Median, phi | 4.67 | 4.67 | 4.67 |
| Median, in. | 0.0015 | 0.0015 | 0.0015 |
| Median, mm | 0.039 | 0.039 | 0.039 |
| Mean, phi | 4.65 | 5.52 | 5.23 |
| Mean, in. | 0.0016 | 0.0009 | 0.0010 |
| Mean, mm | 0.040 | 0.022 | 0.027 |
| Sorting | 2.102 | 1.814 | 1.846 |
| Skewness | 0.789 | 0.465 | 0.516 |
| Kurtosis | 0.300 | 0.707 | 1.184 |
| Grain Size Description (ASTM-USCS Scale) | | Silt (based on Mean from Trask) | |

| Description | Retained on Sieve # | Weight Percent |
|-------------|------------------------|-------------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 0.00 |
| Fine Sand | 200 | 17.71 |
| Silt | >0.005 mm | 68.15 |
| Clay | <0.005 mm | 14.14 |
| Total | | 100 |

Client: Groundwater Services, Inc. **PTS File No:** 34379
Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois **Sample ID:** AI-04 (25-27)
Project No: GSI Job No. G-2876 **Depth, ft:** 26.30



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 0.00 | 0.00 | 0.00 |
| 0.0331 | 0.841 | 0.25 | 20 | 0.00 | 0.00 | 0.00 |
| 0.0278 | 0.707 | 0.50 | 25 | 0.00 | 0.00 | 0.00 |
| 0.0234 | 0.595 | 0.75 | 30 | 0.00 | 0.00 | 0.00 |
| 0.0197 | 0.500 | 1.00 | 35 | 0.00 | 0.00 | 0.00 |
| 0.0166 | 0.420 | 1.25 | 40 | 0.00 | 0.00 | 0.00 |
| 0.0139 | 0.354 | 1.50 | 45 | 0.03 | 0.03 | 0.03 |
| 0.0117 | 0.297 | 1.75 | 50 | 1.17 | 1.17 | 1.20 |
| 0.0098 | 0.250 | 2.00 | 60 | 4.72 | 4.72 | 5.92 |
| 0.0083 | 0.210 | 2.25 | 70 | 8.84 | 8.84 | 14.76 |
| 0.0070 | 0.177 | 2.50 | 80 | 10.20 | 10.20 | 24.97 |
| 0.0059 | 0.149 | 2.75 | 100 | 8.82 | 8.82 | 33.79 |
| 0.0049 | 0.125 | 3.00 | 120 | 6.58 | 6.58 | 40.37 |
| 0.0041 | 0.105 | 3.25 | 140 | 5.08 | 5.08 | 45.45 |
| 0.0035 | 0.088 | 3.50 | 170 | 4.31 | 4.31 | 49.76 |
| 0.0029 | 0.074 | 3.75 | 200 | 4.05 | 4.05 | 53.82 |
| 0.0025 | 0.063 | 4.00 | 230 | 3.90 | 3.90 | 57.72 |
| 0.0021 | 0.053 | 4.25 | 270 | 3.66 | 3.66 | 61.38 |
| 0.00174 | 0.0442 | 4.50 | 325 | 3.28 | 3.28 | 64.66 |
| 0.00146 | 0.0372 | 4.75 | 400 | 2.87 | 2.87 | 67.53 |
| 0.00123 | 0.0313 | 5.00 | 450 | 2.51 | 2.51 | 70.04 |
| 0.000986 | 0.0250 | 5.32 | 500 | 2.85 | 2.85 | 72.89 |
| 0.000790 | 0.0201 | 5.64 | 635 | 2.58 | 2.58 | 75.47 |
| 0.000615 | 0.0156 | 6.00 | | 2.53 | 2.53 | 78.00 |
| 0.000435 | 0.0110 | 6.50 | | 3.00 | 3.00 | 81.00 |
| 0.000308 | 0.00781 | 7.00 | | 2.73 | 2.73 | 83.74 |
| 0.000197 | 0.00500 | 7.65 | | 3.34 | 3.34 | 87.08 |
| 0.000077 | 0.00195 | 9.00 | | 6.29 | 6.29 | 93.37 |
| 0.000038 | 0.000977 | 10.00 | | 3.91 | 3.91 | 97.28 |
| 0.000019 | 0.000488 | 11.00 | | 2.46 | 2.46 | 99.74 |
| 0.000015 | 0.000375 | 11.38 | | 0.26 | 0.26 | 100.00 |
| TOTALS | | | | 100.00 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | 1.95 | 0.0102 | 0.259 |
| 10 | 2.12 | 0.0091 | 0.231 |
| 16 | 2.28 | 0.0081 | 0.206 |
| 25 | 2.50 | 0.0070 | 0.177 |
| 40 | 2.99 | 0.0050 | 0.126 |
| 50 | 3.51 | 0.0034 | 0.088 |
| 60 | 4.16 | 0.0022 | 0.056 |
| 75 | 5.58 | 0.0008 | 0.021 |
| 84 | 7.05 | 0.0003 | 0.008 |
| 90 | 8.27 | 0.0001 | 0.003 |
| 95 | 9.42 | 0.0001 | 0.001 |

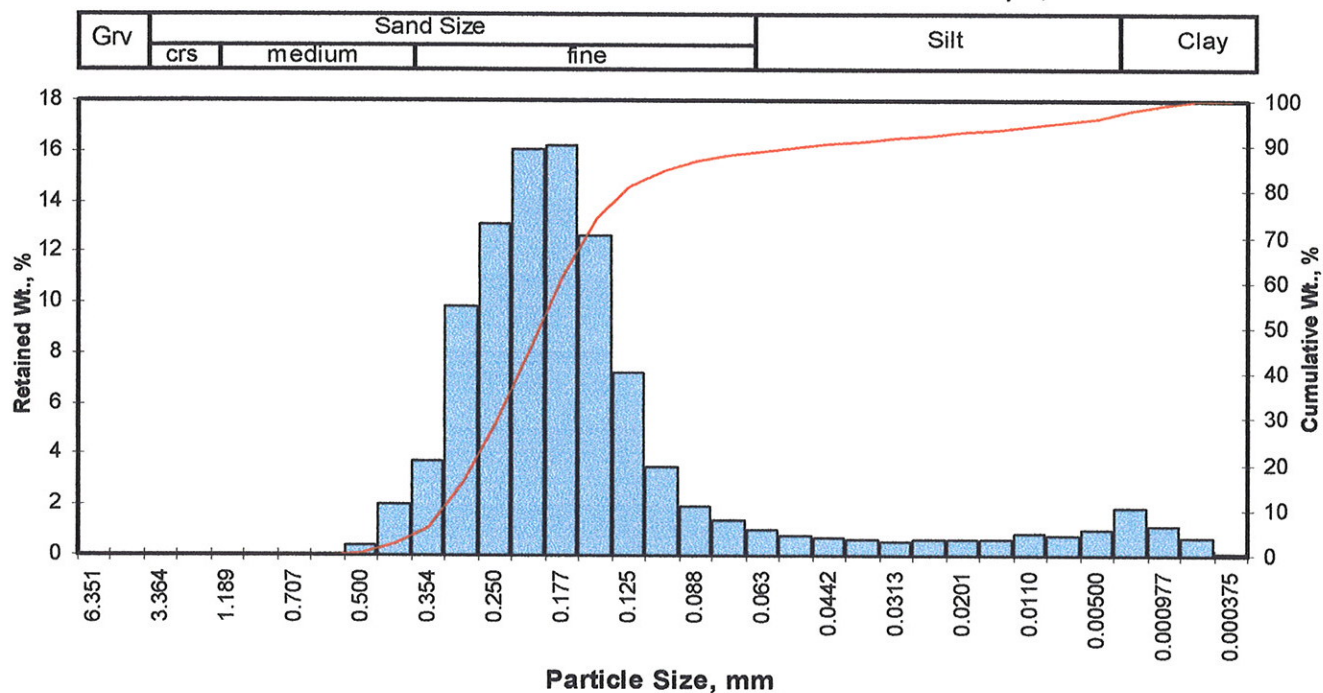
| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 3.51 | 3.51 | 3.51 |
| Median, in. | 0.0034 | 0.0034 | 0.0034 |
| Median, mm | 0.088 | 0.088 | 0.088 |
| Mean, phi | 3.34 | 4.67 | 4.28 |
| Mean, in. | 0.0039 | 0.0016 | 0.0020 |
| Mean, mm | 0.099 | 0.039 | 0.051 |
| Sorting | 2.908 | 2.385 | 2.324 |
| Skewness | 0.694 | 0.483 | 0.532 |
| Kurtosis | 0.342 | 0.565 | 0.993 |

| Grain Size Description | | Fine sand | |
|------------------------|--|----------------------------|--|
| (ASTM-USCS Scale) | | (based on Mean from Trask) | |
| | | | |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 0.00 |
| Fine Sand | 200 | 53.82 |
| Silt | >0.005 mm | 33.26 |
| Clay | <0.005 mm | 12.92 |
| Total | | 100 |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: AI-04 (55-57)
 Depth, ft: 56.30



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 0.00 | 0.00 | 0.00 |
| 0.0331 | 0.841 | 0.25 | 20 | 0.00 | 0.00 | 0.00 |
| 0.0278 | 0.707 | 0.50 | 25 | 0.00 | 0.00 | 0.00 |
| 0.0234 | 0.595 | 0.75 | 30 | 0.00 | 0.00 | 0.00 |
| 0.0197 | 0.500 | 1.00 | 35 | 0.36 | 0.36 | 0.36 |
| 0.0166 | 0.420 | 1.25 | 40 | 2.02 | 2.02 | 2.38 |
| 0.0139 | 0.354 | 1.50 | 45 | 3.72 | 3.72 | 6.09 |
| 0.0117 | 0.297 | 1.75 | 50 | 9.85 | 9.84 | 15.93 |
| 0.0098 | 0.250 | 2.00 | 60 | 13.10 | 13.08 | 29.01 |
| 0.0083 | 0.210 | 2.25 | 70 | 16.10 | 16.08 | 45.09 |
| 0.0070 | 0.177 | 2.50 | 80 | 16.20 | 16.18 | 61.27 |
| 0.0059 | 0.149 | 2.75 | 100 | 12.70 | 12.68 | 73.95 |
| 0.0049 | 0.125 | 3.00 | 120 | 7.23 | 7.22 | 81.17 |
| 0.0041 | 0.105 | 3.25 | 140 | 3.49 | 3.49 | 84.66 |
| 0.0035 | 0.088 | 3.50 | 170 | 1.91 | 1.91 | 86.57 |
| 0.0029 | 0.074 | 3.75 | 200 | 1.42 | 1.42 | 87.98 |
| 0.0025 | 0.063 | 4.00 | 230 | 1.02 | 1.02 | 89.00 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.76 | 0.76 | 89.76 |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.70 | 0.70 | 90.46 |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.65 | 0.65 | 91.11 |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.55 | 0.55 | 91.66 |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.61 | 0.61 | 92.27 |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.62 | 0.62 | 92.89 |
| 0.000615 | 0.0156 | 6.00 | | 0.66 | 0.66 | 93.55 |
| 0.000435 | 0.0110 | 6.50 | | 0.83 | 0.83 | 94.38 |
| 0.000308 | 0.00781 | 7.00 | | 0.80 | 0.80 | 95.18 |
| 0.000197 | 0.00500 | 7.65 | | 1.00 | 1.00 | 96.17 |
| 0.000077 | 0.00195 | 9.00 | | 1.84 | 1.84 | 98.01 |
| 0.000038 | 0.000977 | 10.00 | | 1.19 | 1.19 | 99.20 |
| 0.000019 | 0.000488 | 11.00 | | 0.73 | 0.73 | 99.93 |
| 0.000015 | 0.000375 | 11.38 | | 0.07 | 0.07 | 100.00 |
| TOTALS | | | | 100.10 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | 1.43 | 0.0146 | 0.372 |
| 10 | 1.60 | 0.0130 | 0.330 |
| 16 | 1.75 | 0.0117 | 0.297 |
| 25 | 1.92 | 0.0104 | 0.264 |
| 40 | 2.17 | 0.0087 | 0.222 |
| 50 | 2.33 | 0.0079 | 0.199 |
| 60 | 2.48 | 0.0071 | 0.179 |
| 75 | 2.79 | 0.0057 | 0.145 |
| 84 | 3.20 | 0.0043 | 0.109 |
| 90 | 4.33 | 0.0020 | 0.050 |
| 95 | 6.89 | 0.0003 | 0.008 |

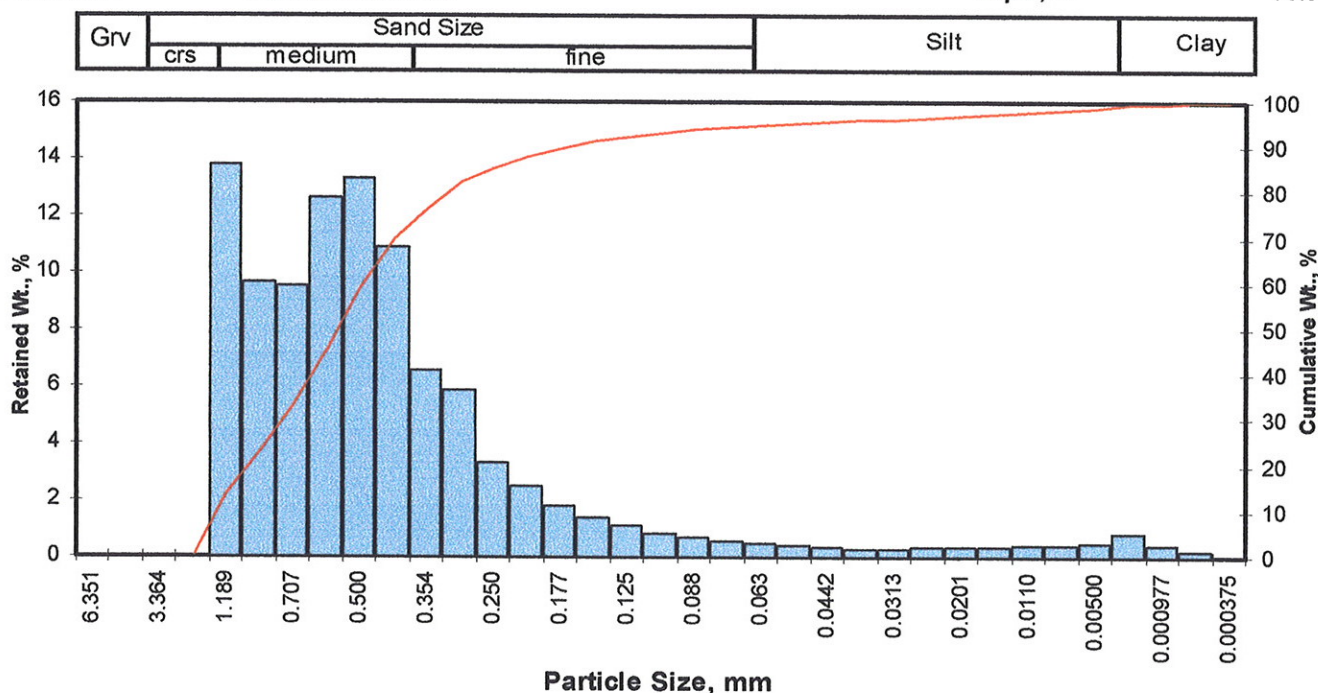
| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 2.33 | 2.33 | 2.33 |
| Median, in. | 0.0079 | 0.0079 | 0.0079 |
| Median, mm | 0.199 | 0.199 | 0.199 |
| Mean, phi | 2.29 | 2.48 | 2.43 |
| Mean, in. | 0.0080 | 0.0071 | 0.0073 |
| Mean, mm | 0.204 | 0.180 | 0.186 |
| Sorting | 1.349 | 0.726 | 1.191 |
| Skewness | 0.980 | 0.208 | 0.440 |
| Kurtosis | 0.212 | 2.765 | 2.595 |

Grain Size Description (ASTM-USCS Scale) Fine sand (based on Mean from Trask)

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 2.38 |
| Fine Sand | 200 | 85.61 |
| Silt | >0.005 mm | 8.19 |
| Clay | <0.005 mm | 3.83 |
| Total | | 100 |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: AI-04 (75-77)
 Depth, ft: 76.30



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 13.80 | 13.79 | 13.79 |
| 0.0331 | 0.841 | 0.25 | 20 | 9.69 | 9.68 | 23.47 |
| 0.0278 | 0.707 | 0.50 | 25 | 9.51 | 9.50 | 32.98 |
| 0.0234 | 0.595 | 0.75 | 30 | 12.60 | 12.59 | 45.57 |
| 0.0197 | 0.500 | 1.00 | 35 | 13.30 | 13.29 | 58.86 |
| 0.0166 | 0.420 | 1.25 | 40 | 10.90 | 10.89 | 69.75 |
| 0.0139 | 0.354 | 1.50 | 45 | 6.55 | 6.55 | 76.30 |
| 0.0117 | 0.297 | 1.75 | 50 | 5.88 | 5.88 | 82.17 |
| 0.0098 | 0.250 | 2.00 | 60 | 3.32 | 3.32 | 85.49 |
| 0.0083 | 0.210 | 2.25 | 70 | 2.49 | 2.49 | 87.98 |
| 0.0070 | 0.177 | 2.50 | 80 | 1.81 | 1.81 | 89.79 |
| 0.0059 | 0.149 | 2.75 | 100 | 1.38 | 1.38 | 91.17 |
| 0.0049 | 0.125 | 3.00 | 120 | 1.10 | 1.10 | 92.27 |
| 0.0041 | 0.105 | 3.25 | 140 | 0.86 | 0.86 | 93.13 |
| 0.0035 | 0.088 | 3.50 | 170 | 0.68 | 0.68 | 93.81 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.58 | 0.58 | 94.39 |
| 0.0025 | 0.063 | 4.00 | 230 | 0.51 | 0.51 | 94.90 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.44 | 0.44 | 95.34 |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.36 | 0.36 | 95.69 |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.30 | 0.30 | 95.99 |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.28 | 0.28 | 96.27 |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.33 | 0.33 | 96.60 |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.33 | 0.33 | 96.93 |
| 0.000615 | 0.0156 | 6.00 | | 0.34 | 0.34 | 97.27 |
| 0.000435 | 0.0110 | 6.50 | | 0.41 | 0.41 | 97.68 |
| 0.000308 | 0.00781 | 7.00 | | 0.38 | 0.38 | 98.06 |
| 0.000197 | 0.00500 | 7.65 | | 0.46 | 0.46 | 98.52 |
| 0.000077 | 0.00195 | 9.00 | | 0.84 | 0.84 | 99.36 |
| 0.000038 | 0.000977 | 10.00 | | 0.42 | 0.42 | 99.78 |
| 0.000019 | 0.000488 | 11.00 | | 0.20 | 0.20 | 99.98 |
| 0.000015 | 0.000375 | 11.38 | | 0.02 | 0.02 | 100.00 |
| TOTALS | | | | 100.10 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -0.73 | 0.0652 | 1.656 |
| 10 | -0.46 | 0.0540 | 1.372 |
| 16 | -0.14 | 0.0433 | 1.099 |
| 25 | 0.29 | 0.0322 | 0.818 |
| 40 | 0.64 | 0.0253 | 0.642 |
| 50 | 0.83 | 0.0221 | 0.561 |
| 60 | 1.03 | 0.0193 | 0.491 |
| 75 | 1.45 | 0.0144 | 0.366 |
| 84 | 1.89 | 0.0106 | 0.270 |
| 90 | 2.54 | 0.0068 | 0.172 |
| 95 | 4.06 | 0.0024 | 0.060 |

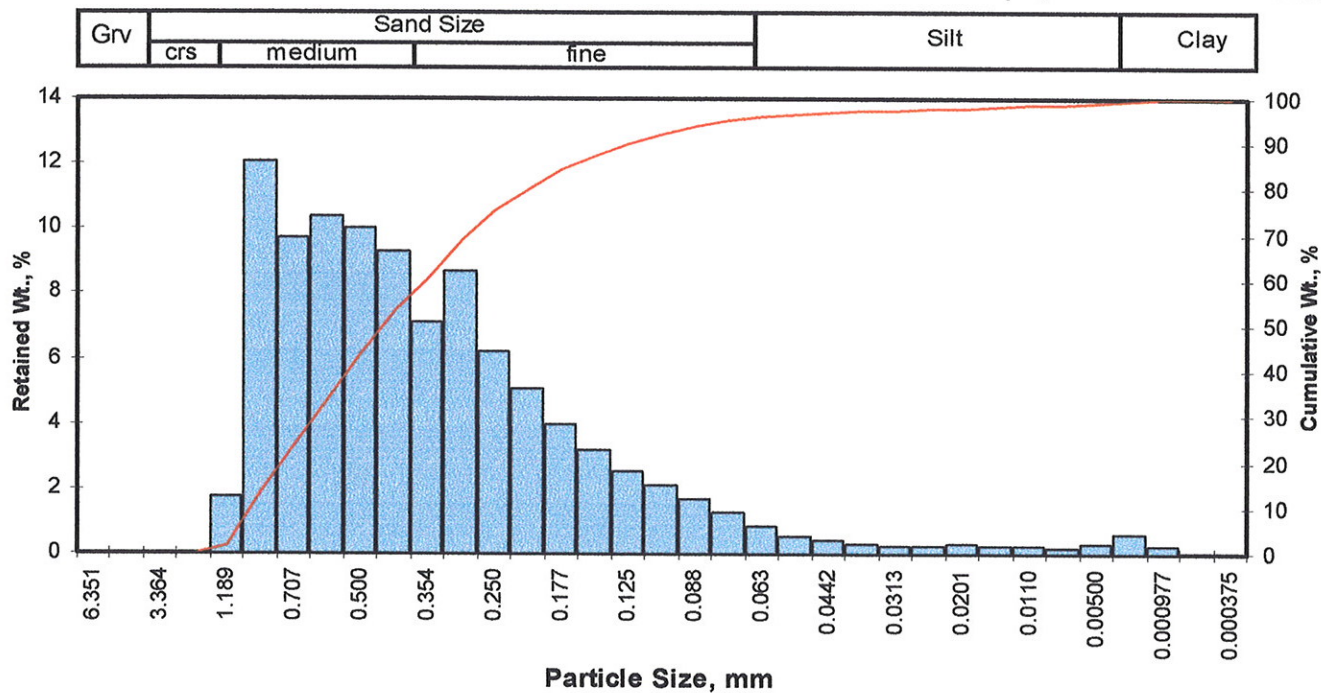
| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 0.83 | 0.83 | 0.83 |
| Median, in. | 0.0221 | 0.0221 | 0.0221 |
| Median, mm | 0.561 | 0.561 | 0.561 |
| Mean, phi | 0.76 | 0.88 | 0.86 |
| Mean, in. | 0.0233 | 0.0215 | 0.0217 |
| Mean, mm | 0.592 | 0.545 | 0.550 |
| Sorting | 1.495 | 1.012 | 1.231 |
| Skewness | 0.975 | 0.042 | 0.195 |
| Kurtosis | 0.188 | 1.366 | 1.691 |

Grain Size Description (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 69.75 |
| Fine Sand | 200 | 24.63 |
| Silt | >0.005 mm | 4.14 |
| Clay | <0.005 mm | 1.48 |
| Total | | 100 |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: AI-14 (75-77)
 Depth, ft: 76.30



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 1.73 | 1.73 | 1.73 |
| 0.0331 | 0.841 | 0.25 | 20 | 12.10 | 12.09 | 13.82 |
| 0.0278 | 0.707 | 0.50 | 25 | 9.74 | 9.73 | 23.56 |
| 0.0234 | 0.595 | 0.75 | 30 | 10.40 | 10.39 | 33.95 |
| 0.0197 | 0.500 | 1.00 | 35 | 10.00 | 9.99 | 43.94 |
| 0.0166 | 0.420 | 1.25 | 40 | 9.30 | 9.29 | 53.24 |
| 0.0139 | 0.354 | 1.50 | 45 | 7.11 | 7.11 | 60.35 |
| 0.0117 | 0.297 | 1.75 | 50 | 8.69 | 8.69 | 69.03 |
| 0.0098 | 0.250 | 2.00 | 60 | 6.24 | 6.24 | 75.27 |
| 0.0083 | 0.210 | 2.25 | 70 | 5.09 | 5.09 | 80.35 |
| 0.0070 | 0.177 | 2.50 | 80 | 4.01 | 4.01 | 84.36 |
| 0.0059 | 0.149 | 2.75 | 100 | 3.17 | 3.17 | 87.53 |
| 0.0049 | 0.125 | 3.00 | 120 | 2.51 | 2.51 | 90.04 |
| 0.0041 | 0.105 | 3.25 | 140 | 2.09 | 2.09 | 92.13 |
| 0.0035 | 0.088 | 3.50 | 170 | 1.72 | 1.72 | 93.85 |
| 0.0029 | 0.074 | 3.75 | 200 | 1.29 | 1.29 | 95.14 |
| 0.0025 | 0.063 | 4.00 | 230 | 0.86 | 0.86 | 96.00 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.57 | 0.57 | 96.56 |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.42 | 0.42 | 96.98 |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.32 | 0.32 | 97.30 |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.22 | 0.22 | 97.52 |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.25 | 0.25 | 97.77 |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.28 | 0.28 | 98.05 |
| 0.000615 | 0.0156 | 6.00 | | 0.27 | 0.27 | 98.32 |
| 0.000435 | 0.0110 | 6.50 | | 0.26 | 0.26 | 98.58 |
| 0.000308 | 0.00781 | 7.00 | | 0.21 | 0.21 | 98.79 |
| 0.000197 | 0.00500 | 7.65 | | 0.29 | 0.29 | 99.08 |
| 0.000077 | 0.00195 | 9.00 | | 0.63 | 0.63 | 99.71 |
| 0.000038 | 0.000977 | 10.00 | | 0.27 | 0.27 | 99.98 |
| 0.000019 | 0.000488 | 11.00 | | 0.02 | 0.02 | 100.00 |
| 0.000015 | 0.000375 | 11.38 | | 0.00 | 0.00 | 100.00 |
| TOTALS | | | | 100.10 | 100.00 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -0.11 | 0.0426 | 1.083 |
| 10 | 0.09 | 0.0369 | 0.938 |
| 16 | 0.31 | 0.0318 | 0.809 |
| 25 | 0.53 | 0.0272 | 0.690 |
| 40 | 0.90 | 0.0211 | 0.535 |
| 50 | 1.16 | 0.0176 | 0.447 |
| 60 | 1.49 | 0.0140 | 0.357 |
| 75 | 1.99 | 0.0099 | 0.252 |
| 84 | 2.48 | 0.0071 | 0.180 |
| 90 | 3.00 | 0.0049 | 0.125 |
| 95 | 3.72 | 0.0030 | 0.076 |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 1.16 | 1.16 | 1.16 |
| Median, in. | 0.0176 | 0.0176 | 0.0176 |
| Median, mm | 0.447 | 0.447 | 0.447 |
| Mean, phi | 1.09 | 1.39 | 1.32 |
| Mean, in. | 0.0185 | 0.0150 | 0.0158 |
| Mean, mm | 0.471 | 0.381 | 0.402 |
| Sorting | 1.656 | 1.086 | 1.124 |
| Skewness | 0.934 | 0.211 | 0.273 |
| Kurtosis | 0.270 | 0.768 | 1.082 |

Grain Size Description (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 53.24 |
| Fine Sand | 200 | 41.90 |
| Silt | >0.005 mm | 3.95 |
| Clay | <0.005 mm | 0.92 |
| Total | | 100 |

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

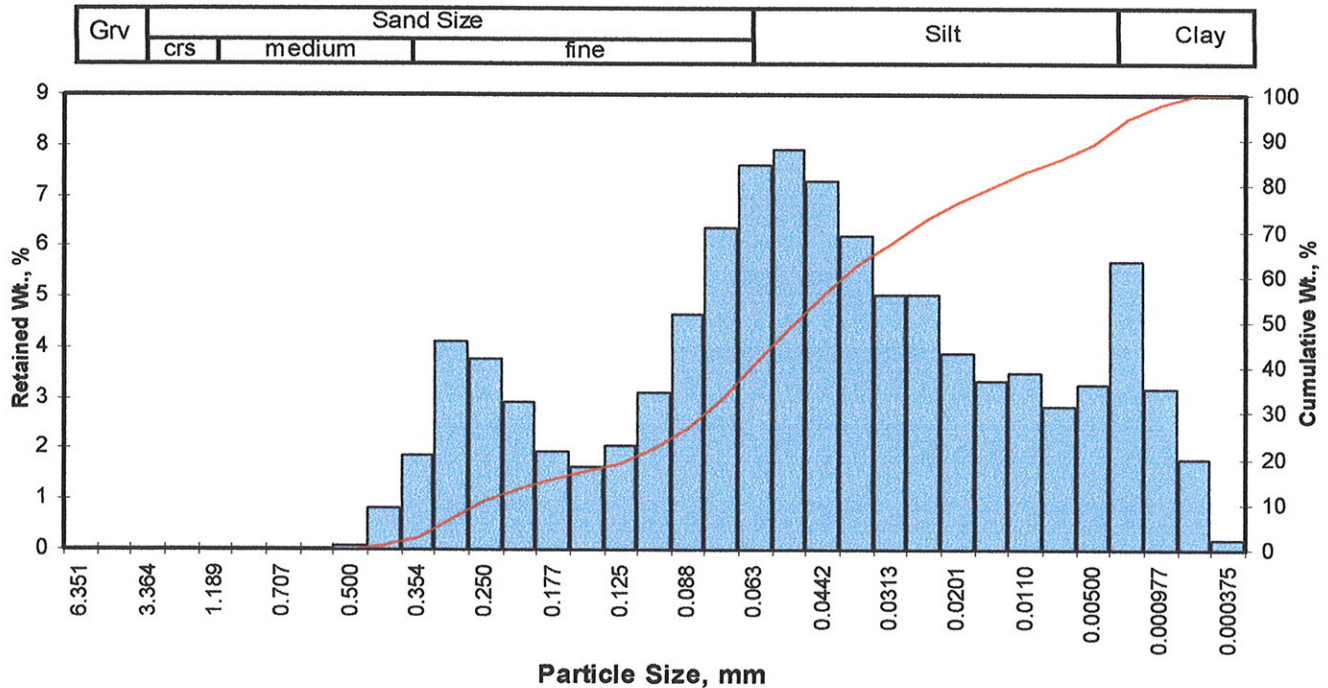
PROJECT NAME: DNAPL Characterization Study, Saugnet Area 1 Sites, Saugnet Illinois
PROJECT NO: GSI Job No. G-2876

| Sample ID | Depth, ft. | Mean Grain Size Description (1) | Median Grain Size mm | Particle Size Distribution, wt. percent | | | | | | Silt & Clay |
|---------------|------------|---------------------------------|----------------------|---|-----------|--------|-------|-------|-------|-------------|
| | | | | Gravel | Sand Size | | | Silt | Clay | |
| | | | | | Coarse | Medium | Fine | | | |
| A1-08 (25-27) | 25.8 | Silt | 0.051 | 0.00 | 0.00 | 0.92 | 32.38 | 55.88 | 10.82 | 66.70 |
| A1-08 (27-29) | 27.8 | Fine sand | 0.299 | 0.00 | 0.00 | 8.90 | 88.16 | 1.88 | 1.06 | 2.94 |
| A1-08 (55-57) | 55.3 | Medium sand | 0.360 | 0.00 | 2.57 | 40.17 | 56.09 | (2) | (2) | 1.16 |
| A1-08 (85-87) | 85.8 | Medium sand | 0.818 | 6.48 | 10.69 | 68.26 | 13.99 | (2) | (2) | 0.57 |
| A1-13 (24-26) | 24.8 | Fine sand | 0.243 | 0.00 | 0.00 | 13.03 | 76.73 | 7.03 | 3.21 | 10.24 |
| A1-14 (15-17) | 15.8 | Fine sand | 0.087 | 0.00 | 0.00 | 0.00 | 62.40 | 33.29 | 4.31 | 37.60 |
| A1-14 (35-37) | 35.3 | Medium sand | 0.654 | 0.00 | 8.04 | 65.02 | 26.12 | (2) | (2) | 0.81 |
| A1-6 (35-37) | 35.8 | Fine sand | 0.334 | 0.00 | 3.72 | 27.59 | 67.71 | (2) | (2) | 0.98 |

(1) Based on Mean from Trask

(2) Mechanical sieve does not differentiate silt/clay fraction

Client: Groundwater Services, Inc. **PTS File No:** 34379
Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois **Sample ID:** A1-08 (25-27)
Project No: GSI Job No. G-2876 **Depth, ft:** 25.80

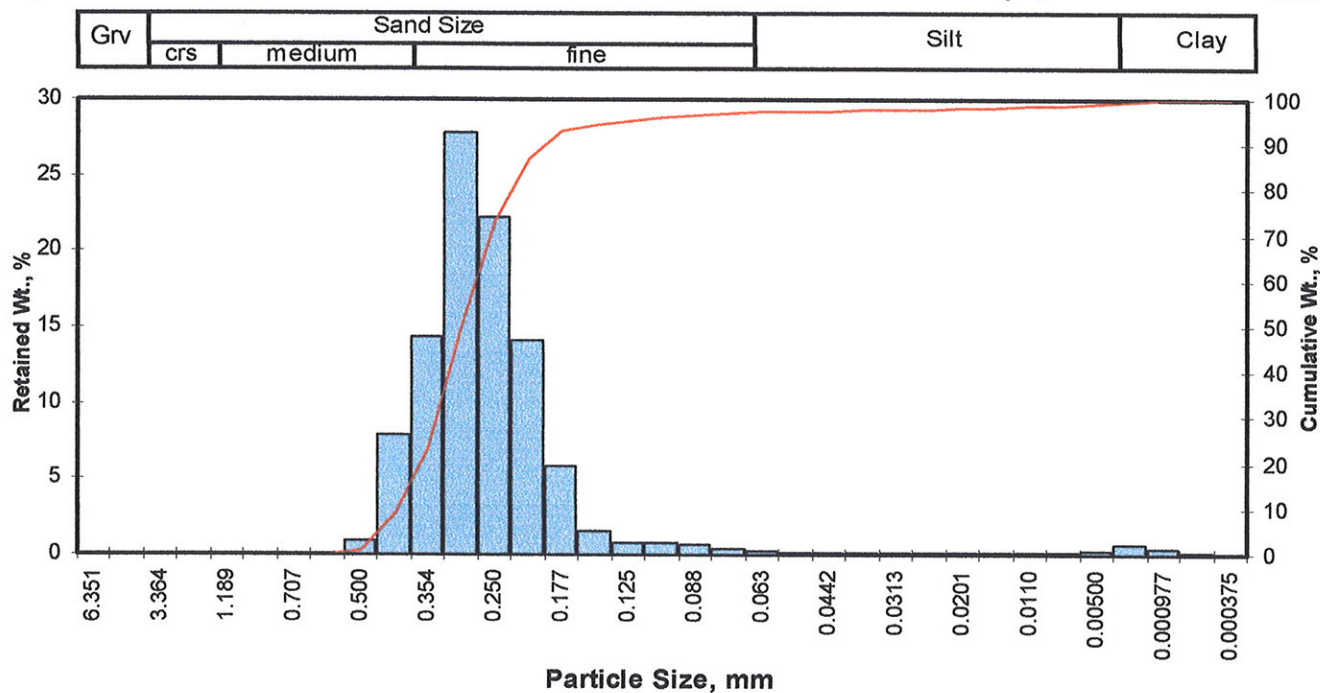


| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|--|-------------|---------------|-------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | Inches | Millimeters | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 5 | 1.63 | 0.0127 | 0.322 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 | 10 | 1.96 | 0.0101 | 0.258 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 | 16 | 2.58 | 0.0066 | 0.168 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 | 25 | 3.40 | 0.0037 | 0.095 |
| 0.0468 | 1.189 | -0.25 | 16 | 0.00 | 0.00 | 0.00 | 40 | 3.97 | 0.0025 | 0.064 |
| 0.0331 | 0.841 | 0.25 | 20 | 0.00 | 0.00 | 0.00 | 50 | 4.29 | 0.0020 | 0.051 |
| 0.0278 | 0.707 | 0.50 | 25 | 0.00 | 0.00 | 0.00 | 60 | 4.66 | 0.0016 | 0.040 |
| 0.0234 | 0.595 | 0.75 | 30 | 0.00 | 0.00 | 0.00 | 75 | 5.53 | 0.0008 | 0.022 |
| 0.0197 | 0.500 | 1.00 | 35 | 0.09 | 0.09 | 0.09 | 84 | 6.66 | 0.0004 | 0.010 |
| 0.0166 | 0.420 | 1.25 | 40 | 0.83 | 0.83 | 0.92 | 90 | 7.84 | 0.0002 | 0.004 |
| 0.0139 | 0.354 | 1.50 | 45 | 1.85 | 1.85 | 2.77 | 95 | 9.04 | 0.0001 | 0.002 |
| 0.0117 | 0.297 | 1.75 | 50 | 4.13 | 4.13 | 6.90 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 3.76 | 3.76 | 10.66 | | | | |
| 0.0083 | 0.210 | 2.25 | 70 | 2.91 | 2.91 | 13.57 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 1.94 | 1.94 | 15.51 | | | | |
| 0.0059 | 0.149 | 2.75 | 100 | 1.62 | 1.62 | 17.13 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 2.04 | 2.04 | 19.17 | | | | |
| 0.0041 | 0.105 | 3.25 | 140 | 3.10 | 3.10 | 22.27 | | | | |
| 0.0035 | 0.088 | 3.50 | 170 | 4.66 | 4.66 | 26.93 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 6.37 | 6.37 | 33.30 | | | | |
| 0.0025 | 0.063 | 4.00 | 230 | 7.60 | 7.60 | 40.90 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 7.92 | 7.92 | 48.82 | | | | |
| 0.00174 | 0.0442 | 4.50 | 325 | 7.30 | 7.30 | 56.13 | | | | |
| 0.00146 | 0.0372 | 4.75 | 400 | 6.19 | 6.19 | 62.32 | | | | |
| 0.00123 | 0.0313 | 5.00 | 450 | 5.03 | 5.03 | 67.35 | | | | |
| 0.000986 | 0.0250 | 5.32 | 500 | 5.06 | 5.06 | 72.41 | | | | |
| 0.000790 | 0.0201 | 5.64 | 635 | 3.87 | 3.87 | 76.28 | | | | |
| 0.000615 | 0.0156 | 6.00 | | 3.32 | 3.32 | 79.60 | | | | |
| 0.000435 | 0.0110 | 6.50 | | 3.49 | 3.49 | 83.09 | | | | |
| 0.000308 | 0.00781 | 7.00 | | 2.85 | 2.85 | 85.94 | | | | |
| 0.000197 | 0.00500 | 7.65 | | 3.24 | 3.24 | 89.18 | | | | |
| 0.000077 | 0.00195 | 9.00 | | 5.69 | 5.69 | 94.87 | | | | |
| 0.000038 | 0.000977 | 10.00 | | 3.17 | 3.17 | 98.04 | | | | |
| 0.000019 | 0.000488 | 11.00 | | 1.78 | 1.78 | 99.82 | | | | |
| 0.000015 | 0.000375 | 11.38 | | 0.18 | 0.18 | 100.00 | | | | |
| TOTALS | | | | 100.00 | 100.00 | 100.00 | | | | |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 4.29 | 4.29 | 4.29 |
| Median, in. | 0.0020 | 0.0020 | 0.0020 |
| Median, mm | 0.051 | 0.051 | 0.051 |
| Mean, phi | 4.10 | 4.62 | 4.51 |
| Mean, in. | 0.0023 | 0.0016 | 0.0017 |
| Mean, mm | 0.058 | 0.041 | 0.044 |
| Sorting | 2.098 | 2.042 | 2.143 |
| Skewness | 0.886 | 0.160 | 0.222 |
| Kurtosis | 0.145 | 0.813 | 1.420 |

| Grain Size Description | | Silt | |
|------------------------|---------------------|----------------------------|--|
| (ASTM-USCS Scale) | | (based on Mean from Trask) | |
| | | | |
| Description | Retained on Sieve # | Weight Percent | |
| | | | |
| Gravel | 4 | 0.00 | |
| Coarse Sand | 10 | 0.00 | |
| Medium Sand | 40 | 0.92 | |
| Fine Sand | 200 | 32.38 | |
| Silt | >0.005 mm | 55.88 | |
| Clay | <0.005 mm | 10.82 | |
| Total | | 100 | |

Client: Groundwater Services, Inc. **PTS File No:** 34379
Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois **Sample ID:** A1-08 (27-29)
Project No: GSI Job No. G-2876 **Depth, ft:** 27.80



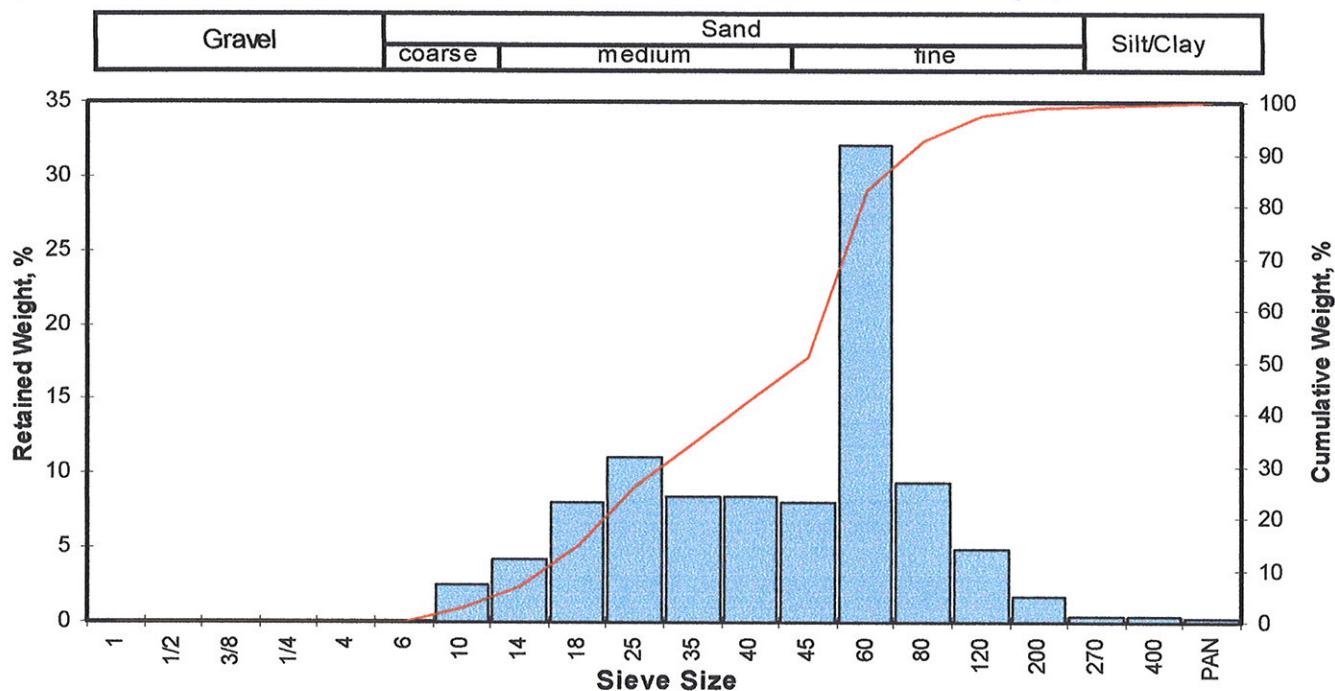
| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|--|-------------|---------------|-------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | Inches | Millimeters | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 5 | 1.13 | 0.0180 | 0.458 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 | 10 | 1.27 | 0.0163 | 0.415 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 | 16 | 1.37 | 0.0152 | 0.386 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 | 25 | 1.52 | 0.0138 | 0.350 |
| 0.0468 | 1.189 | -0.25 | 16 | 0.00 | 0.00 | 0.00 | 40 | 1.65 | 0.0125 | 0.318 |
| 0.0331 | 0.841 | 0.25 | 20 | 0.00 | 0.00 | 0.00 | 50 | 1.74 | 0.0118 | 0.299 |
| 0.0278 | 0.707 | 0.50 | 25 | 0.00 | 0.00 | 0.00 | 60 | 1.85 | 0.0109 | 0.277 |
| 0.0234 | 0.595 | 0.75 | 30 | 0.00 | 0.00 | 0.00 | 75 | 2.03 | 0.0096 | 0.244 |
| 0.0197 | 0.500 | 1.00 | 35 | 0.96 | 0.96 | 0.96 | 84 | 2.19 | 0.0086 | 0.219 |
| 0.0166 | 0.420 | 1.25 | 40 | 7.94 | 7.94 | 8.90 | 90 | 2.37 | 0.0076 | 0.194 |
| 0.0139 | 0.354 | 1.50 | 45 | 14.30 | 14.30 | 23.20 | 95 | 2.88 | 0.0053 | 0.136 |
| 0.0117 | 0.297 | 1.75 | 50 | 27.80 | 27.79 | 50.99 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 22.20 | 22.20 | 73.19 | | | | |
| 0.0083 | 0.210 | 2.25 | 70 | 14.10 | 14.10 | 87.28 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 5.78 | 5.78 | 93.06 | | | | |
| 0.0059 | 0.149 | 2.75 | 100 | 1.55 | 1.55 | 94.61 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 0.75 | 0.75 | 95.36 | | | | |
| 0.0041 | 0.105 | 3.25 | 140 | 0.77 | 0.77 | 96.13 | | | | |
| 0.0035 | 0.088 | 3.50 | 170 | 0.59 | 0.59 | 96.72 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 0.34 | 0.34 | 97.06 | | | | |
| 0.0025 | 0.063 | 4.00 | 230 | 0.20 | 0.20 | 97.26 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 0.16 | 0.16 | 97.42 | | | | |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.17 | 0.17 | 97.59 | | | | |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.15 | 0.15 | 97.74 | | | | |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.12 | 0.12 | 97.86 | | | | |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.14 | 0.14 | 98.00 | | | | |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.16 | 0.16 | 98.16 | | | | |
| 0.000615 | 0.0156 | 6.00 | | 0.17 | 0.17 | 98.33 | | | | |
| 0.000435 | 0.0110 | 6.50 | | 0.19 | 0.19 | 98.52 | | | | |
| 0.000308 | 0.00781 | 7.00 | | 0.17 | 0.17 | 98.69 | | | | |
| 0.000197 | 0.00500 | 7.65 | | 0.25 | 0.25 | 98.94 | | | | |
| 0.000077 | 0.00195 | 9.00 | | 0.60 | 0.60 | 99.54 | | | | |
| 0.000038 | 0.000977 | 10.00 | | 0.35 | 0.35 | 99.89 | | | | |
| 0.000019 | 0.000488 | 11.00 | | 0.11 | 0.11 | 100.00 | | | | |
| 0.000015 | 0.000375 | 11.38 | | 0.00 | 0.00 | 100.00 | | | | |
| TOTALS | | | | 100.00 | 100.00 | 100.00 | | | | |

| Measure | Trask | Inman | Folk-Ward |
|---|--------|---|-----------|
| Median, phi | 1.74 | 1.74 | 1.74 |
| Median, in. | 0.0118 | 0.0118 | 0.0118 |
| Median, mm | 0.299 | 0.299 | 0.299 |
| Mean, phi | 1.75 | 1.78 | 1.77 |
| Mean, in. | 0.0117 | 0.0114 | 0.0116 |
| Mean, mm | 0.297 | 0.291 | 0.293 |
| Sorting | 1.196 | 0.409 | 0.470 |
| Skewness | 0.977 | 0.102 | 0.201 |
| Kurtosis | 0.238 | 1.143 | 1.392 |
| Grain Size Description (ASTM-USCS Scale) | | Fine sand (based on Mean from Trask) | |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 8.90 |
| Fine Sand | 200 | 88.16 |
| Silt | >0.005 mm | 1.88 |
| Clay | <0.005 mm | 1.06 |
| Total | | 100 |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: A1-08 (55-57)
 Depth, ft: 55.3



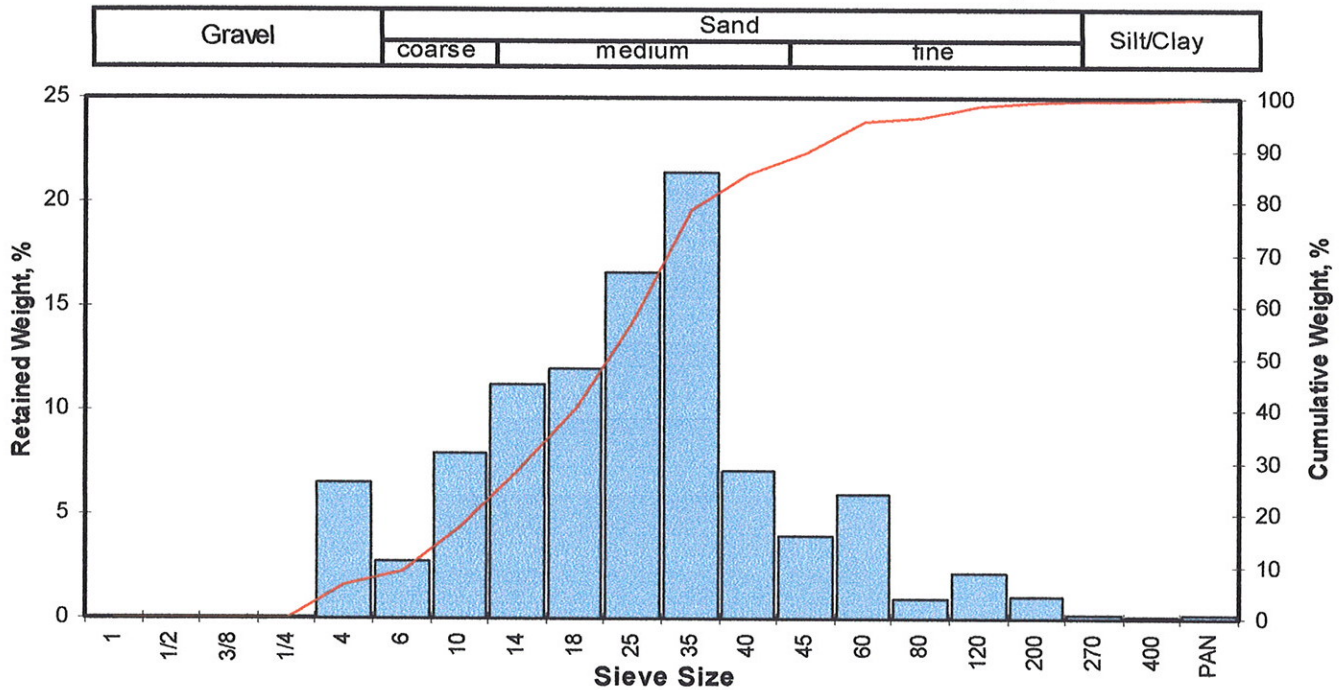
| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|---------------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|--|-----------|---------------|-------------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | | | Inches | Millimeters |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 | 5 | -0.71 | 0.0645 | 1.639 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 | 10 | -0.30 | 0.0485 | 1.231 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 | 16 | 0.05 | 0.0379 | 0.964 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 25 | 0.46 | 0.0286 | 0.727 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 | 40 | 1.17 | 0.0175 | 0.445 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 | 50 | 1.47 | 0.0142 | 0.360 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.42 | 2.57 | 2.57 | 60 | 1.64 | 0.0126 | 0.320 |
| 0.0557 | 1.414 | -0.50 | 14 | 0.69 | 4.23 | 6.80 | 75 | 1.88 | 0.0107 | 0.272 |
| 0.0394 | 1.000 | 0.00 | 18 | 1.31 | 8.02 | 14.82 | 84 | 2.06 | 0.0095 | 0.240 |
| 0.0278 | 0.707 | 0.50 | 25 | 1.81 | 11.08 | 25.90 | 90 | 2.38 | 0.0076 | 0.193 |
| 0.0197 | 0.500 | 1.00 | 35 | 1.38 | 8.45 | 34.35 | 95 | 2.77 | 0.0058 | 0.146 |
| 0.0166 | 0.420 | 1.25 | 40 | 1.37 | 8.39 | 42.74 | | | | |
| 0.0139 | 0.354 | 1.50 | 45 | 1.32 | 8.08 | 50.83 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 5.24 | 32.09 | 82.91 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 1.54 | 9.43 | 92.35 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 0.79 | 4.84 | 97.18 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 0.27 | 1.65 | 98.84 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 0.07 | 0.43 | 99.27 | | | | |
| 0.0015 | 0.037 | 4.75 | 400 | 0.07 | 0.43 | 99.69 | | | | |
| | | | PAN | 0.05 | 0.31 | 100.00 | | | | |
| TOTALS | | | | | | | 16.33 | 100.00 | 100.00 | |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 1.47 | 1.47 | 1.47 |
| Median, in. | 0.0142 | 0.0142 | 0.0142 |
| Median, mm | 0.360 | 0.360 | 0.360 |
| Mean, phi | 1.00 | 1.06 | 1.20 |
| Mean, in. | 0.0197 | 0.0189 | 0.0172 |
| Mean, mm | 0.500 | 0.481 | 0.437 |
| Sorting | 1.634 | 1.002 | 1.029 |
| Skewness | 1.237 | -0.418 | -0.336 |
| Kurtosis | 0.219 | 0.740 | 1.008 |

| Grain Size Description | | Medium sand | |
|------------------------|---------------------|----------------------------|--|
| (ASTM-USCS Scale) | | (based on Mean from Trask) | |
| Description | Retained on Sieve # | Weight Percent | |
| Gravel | 4 | 0.00 | |
| Coarse Sand | 10 | 2.57 | |
| Medium Sand | 40 | 40.17 | |
| Fine Sand | 200 | 56.09 | |
| Silt/Clay | <200 | 1.16 | |
| Total | | 100 | |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

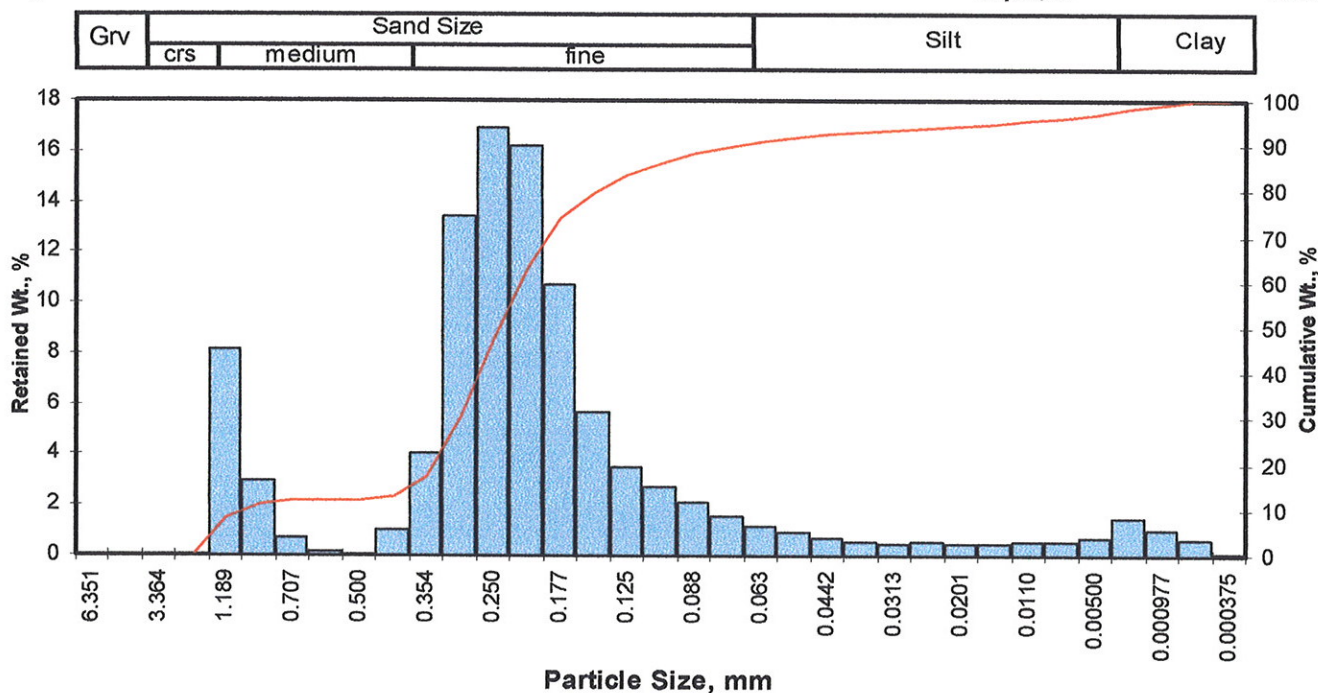
PTS File No: 34379
 Sample ID: A1-08 (85-87)
 Depth, ft: 85.8



| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|---------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|--|-----------|---------------|-------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | | Inches | Millimeters | |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 | 5 | -2.35 | 0.2001 | 5.082 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 | 10 | -1.68 | 0.1258 | 3.196 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 | 16 | -1.11 | 0.0850 | 2.160 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 25 | -0.65 | 0.0619 | 1.572 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.57 | 6.48 | 6.48 | 40 | -0.02 | 0.0398 | 1.011 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.24 | 2.73 | 9.22 | 50 | 0.29 | 0.0322 | 0.818 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.70 | 7.96 | 17.18 | 60 | 0.57 | 0.0265 | 0.674 |
| 0.0557 | 1.414 | -0.50 | 14 | 0.99 | 11.26 | 28.44 | 75 | 0.92 | 0.0208 | 0.528 |
| 0.0394 | 1.000 | 0.00 | 18 | 1.05 | 11.95 | 40.39 | 84 | 1.20 | 0.0171 | 0.436 |
| 0.0278 | 0.707 | 0.50 | 25 | 1.46 | 16.61 | 57.00 | 90 | 1.55 | 0.0135 | 0.342 |
| 0.0197 | 0.500 | 1.00 | 35 | 1.88 | 21.39 | 78.38 | 95 | 1.97 | 0.0100 | 0.255 |
| 0.0166 | 0.420 | 1.25 | 40 | 0.62 | 7.05 | 85.44 | | | | |
| 0.0139 | 0.354 | 1.50 | 45 | 0.35 | 3.98 | 89.42 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 0.52 | 5.92 | 95.34 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 0.08 | 0.91 | 96.25 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 0.19 | 2.16 | 98.41 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 0.09 | 1.02 | 99.43 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 0.02 | 0.23 | 99.66 | | | | |
| 0.0015 | 0.037 | 4.75 | 400 | 0.01 | 0.11 | 99.77 | | | | |
| | | | PAN | 0.02 | 0.23 | 100.00 | | | | |
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Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876

PTS File No: 34379
 Sample ID: A1-13 (24-26)
 Depth, ft: 24.80



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 |
| 0.0468 | 1.189 | -0.25 | 16 | 8.18 | 8.18 | 8.18 |
| 0.0331 | 0.841 | 0.25 | 20 | 2.96 | 2.96 | 11.14 |
| 0.0278 | 0.707 | 0.50 | 25 | 0.73 | 0.73 | 11.87 |
| 0.0234 | 0.595 | 0.75 | 30 | 0.12 | 0.12 | 11.99 |
| 0.0197 | 0.500 | 1.00 | 35 | 0.01 | 0.01 | 12.00 |
| 0.0166 | 0.420 | 1.25 | 40 | 1.03 | 1.03 | 13.03 |
| 0.0139 | 0.354 | 1.50 | 45 | 4.01 | 4.01 | 17.05 |
| 0.0117 | 0.297 | 1.75 | 50 | 13.40 | 13.40 | 30.45 |
| 0.0098 | 0.250 | 2.00 | 60 | 16.90 | 16.90 | 47.35 |
| 0.0083 | 0.210 | 2.25 | 70 | 16.20 | 16.20 | 63.55 |
| 0.0070 | 0.177 | 2.50 | 80 | 10.70 | 10.70 | 74.25 |
| 0.0059 | 0.149 | 2.75 | 100 | 5.66 | 5.66 | 79.91 |
| 0.0049 | 0.125 | 3.00 | 120 | 3.51 | 3.51 | 83.42 |
| 0.0041 | 0.105 | 3.25 | 140 | 2.71 | 2.71 | 86.13 |
| 0.0035 | 0.088 | 3.50 | 170 | 2.06 | 2.06 | 88.19 |
| 0.0029 | 0.074 | 3.75 | 200 | 1.57 | 1.57 | 89.76 |
| 0.0025 | 0.063 | 4.00 | 230 | 1.20 | 1.20 | 90.96 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.90 | 0.90 | 91.86 |
| 0.00174 | 0.0442 | 4.50 | 325 | 0.69 | 0.69 | 92.55 |
| 0.00146 | 0.0372 | 4.75 | 400 | 0.55 | 0.55 | 93.10 |
| 0.00123 | 0.0313 | 5.00 | 450 | 0.45 | 0.45 | 93.55 |
| 0.000986 | 0.0250 | 5.32 | 500 | 0.51 | 0.51 | 94.06 |
| 0.000790 | 0.0201 | 5.64 | 635 | 0.47 | 0.47 | 94.53 |
| 0.000615 | 0.0156 | 6.00 | | 0.46 | 0.46 | 94.99 |
| 0.000435 | 0.0110 | 6.50 | | 0.56 | 0.56 | 95.55 |
| 0.000308 | 0.00781 | 7.00 | | 0.54 | 0.54 | 96.09 |
| 0.000197 | 0.00500 | 7.65 | | 0.70 | 0.70 | 96.79 |
| 0.000077 | 0.00195 | 9.00 | | 1.49 | 1.49 | 98.28 |
| 0.000038 | 0.000977 | 10.00 | | 1.04 | 1.04 | 99.32 |
| 0.000019 | 0.000488 | 11.00 | | 0.62 | 0.62 | 99.94 |
| 0.000015 | 0.000375 | 11.38 | | 0.06 | 0.06 | 100.00 |
| TOTALS | | | | 100.00 | 100.00 | 100.00 |

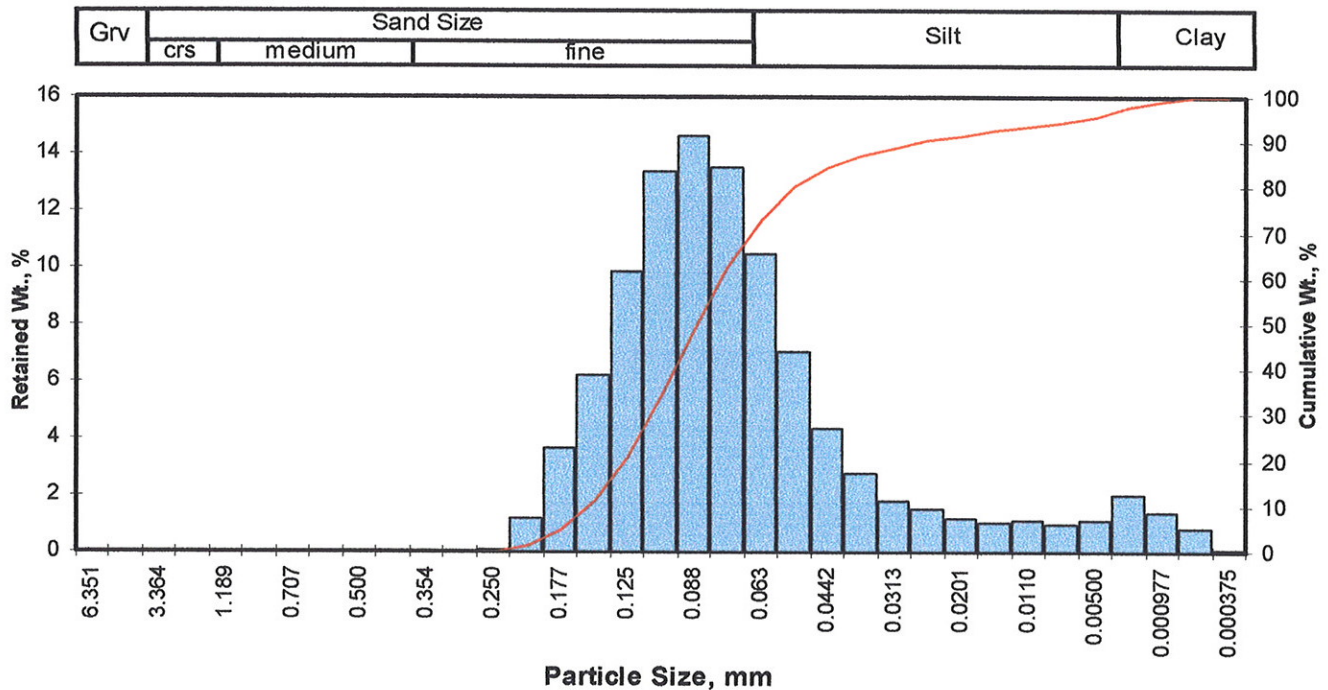
| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -0.54 | 0.0573 | 1.456 |
| 10 | 0.06 | 0.0378 | 0.961 |
| 16 | 1.43 | 0.0146 | 0.370 |
| 25 | 1.65 | 0.0126 | 0.319 |
| 40 | 1.89 | 0.0106 | 0.270 |
| 50 | 2.04 | 0.0096 | 0.243 |
| 60 | 2.20 | 0.0086 | 0.218 |
| 75 | 2.53 | 0.0068 | 0.173 |
| 84 | 3.05 | 0.0047 | 0.120 |
| 90 | 3.80 | 0.0028 | 0.072 |
| 95 | 6.01 | 0.0006 | 0.016 |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 2.04 | 2.04 | 2.04 |
| Median, in. | 0.0096 | 0.0096 | 0.0096 |
| Median, mm | 0.243 | 0.243 | 0.243 |
| Mean, phi | 2.02 | 2.24 | 2.18 |
| Mean, in. | 0.0097 | 0.0083 | 0.0087 |
| Mean, mm | 0.246 | 0.211 | 0.221 |
| Sorting | 1.359 | 0.809 | 1.397 |
| Skewness | 0.966 | 0.251 | 0.231 |
| Kurtosis | 0.082 | 3.046 | 3.034 |

| Grain Size Description | Fine sand |
|------------------------|----------------------------|
| (ASTM-USCS Scale) | (based on Mean from Trask) |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 0.00 |
| Medium Sand | 40 | 13.03 |
| Fine Sand | 200 | 76.73 |
| Silt | >0.005 mm | 7.03 |
| Clay | <0.005 mm | 3.21 |
| Total | | 100 |

Client: Groundwater Services, Inc. **PTS File No:** 34379
Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois **Sample ID:** A1-14 (15-17)
Project No: GSI Job No. G-2876 **Depth, ft:** 15.80



| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|--|-------------|---------------|-------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | Inches | Millimeters | | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 5 | 2.50 | 0.0069 | 0.176 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 | 10 | 2.71 | 0.0060 | 0.153 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 | 16 | 2.88 | 0.0054 | 0.136 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 | 25 | 3.08 | 0.0047 | 0.119 |
| 0.0468 | 1.189 | -0.25 | 16 | 0.00 | 0.00 | 0.00 | 40 | 3.35 | 0.0039 | 0.098 |
| 0.0331 | 0.841 | 0.25 | 20 | 0.00 | 0.00 | 0.00 | 50 | 3.52 | 0.0034 | 0.087 |
| 0.0278 | 0.707 | 0.50 | 25 | 0.00 | 0.00 | 0.00 | 60 | 3.71 | 0.0030 | 0.077 |
| 0.0234 | 0.595 | 0.75 | 30 | 0.00 | 0.00 | 0.00 | 75 | 4.07 | 0.0023 | 0.059 |
| 0.0197 | 0.500 | 1.00 | 35 | 0.00 | 0.00 | 0.00 | 84 | 4.48 | 0.0018 | 0.045 |
| 0.0166 | 0.420 | 1.25 | 40 | 0.00 | 0.00 | 0.00 | 90 | 5.24 | 0.0010 | 0.026 |
| 0.0139 | 0.354 | 1.50 | 45 | 0.00 | 0.00 | 0.00 | 95 | 7.24 | 0.0003 | 0.007 |
| 0.0117 | 0.297 | 1.75 | 50 | 0.00 | 0.00 | 0.00 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 0.05 | 0.05 | 0.05 | | | | |
| 0.0083 | 0.210 | 2.25 | 70 | 1.16 | 1.16 | 1.21 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 3.68 | 3.68 | 4.89 | | | | |
| 0.0059 | 0.149 | 2.75 | 100 | 6.18 | 6.18 | 11.07 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 9.83 | 9.83 | 20.90 | | | | |
| 0.0041 | 0.105 | 3.25 | 140 | 13.40 | 13.40 | 34.30 | | | | |
| 0.0035 | 0.088 | 3.50 | 170 | 14.60 | 14.60 | 48.90 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 13.50 | 13.50 | 62.40 | | | | |
| 0.0025 | 0.063 | 4.00 | 230 | 10.50 | 10.50 | 72.90 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 7.06 | 7.06 | 79.96 | | | | |
| 0.00174 | 0.0442 | 4.50 | 325 | 4.36 | 4.36 | 84.32 | | | | |
| 0.00146 | 0.0372 | 4.75 | 400 | 2.73 | 2.73 | 87.05 | | | | |
| 0.00123 | 0.0313 | 5.00 | 450 | 1.78 | 1.78 | 88.83 | | | | |
| 0.000986 | 0.0250 | 5.32 | 500 | 1.55 | 1.55 | 90.38 | | | | |
| 0.000790 | 0.0201 | 5.64 | 635 | 1.14 | 1.14 | 91.52 | | | | |
| 0.000615 | 0.0156 | 6.00 | | 1.00 | 1.00 | 92.52 | | | | |
| 0.000435 | 0.0110 | 6.50 | | 1.10 | 1.10 | 93.62 | | | | |
| 0.000308 | 0.00781 | 7.00 | | 0.95 | 0.95 | 94.57 | | | | |
| 0.000197 | 0.00500 | 7.65 | | 1.12 | 1.12 | 95.69 | | | | |
| 0.000077 | 0.00195 | 9.00 | | 2.01 | 2.01 | 97.70 | | | | |
| 0.000038 | 0.000977 | 10.00 | | 1.35 | 1.35 | 99.05 | | | | |
| 0.000019 | 0.000488 | 11.00 | | 0.86 | 0.86 | 99.91 | | | | |
| 0.000015 | 0.000375 | 11.38 | | 0.09 | 0.09 | 100.00 | | | | |
| TOTALS | | | | 100.00 | 100.00 | 100.00 | | | | |

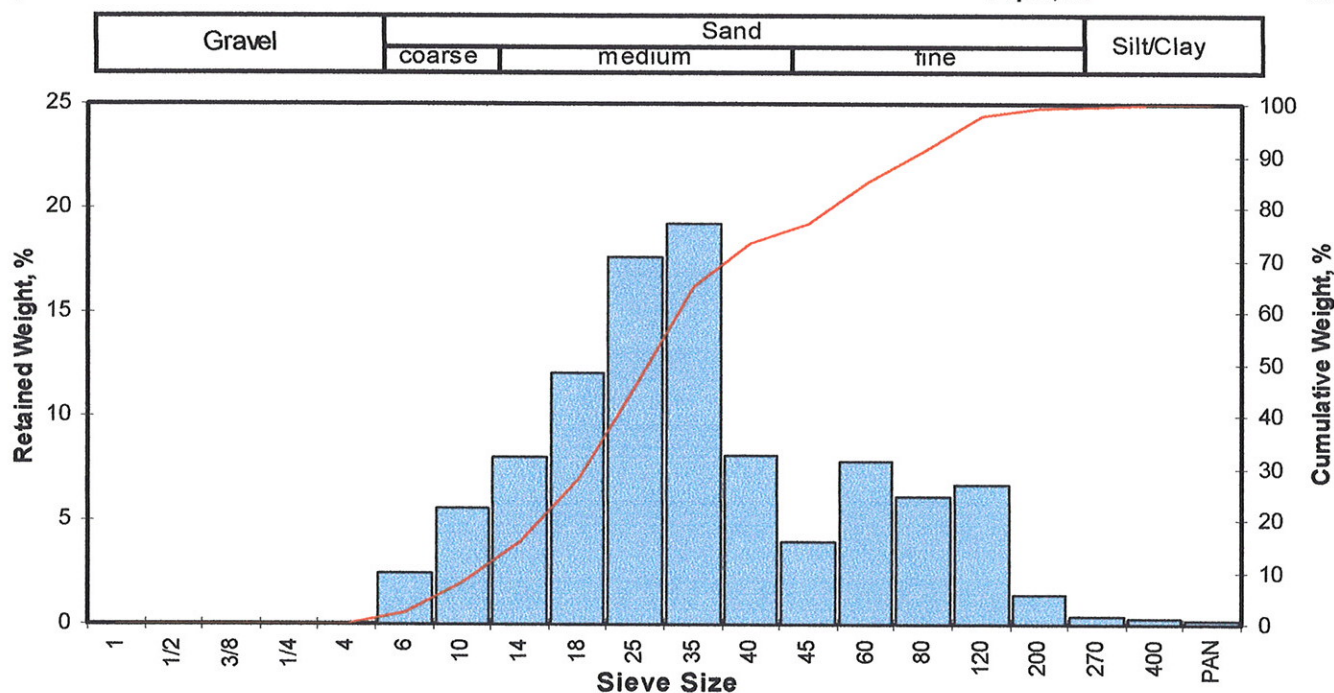
| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | 2.50 | 0.0069 | 0.176 |
| 10 | 2.71 | 0.0060 | 0.153 |
| 16 | 2.88 | 0.0054 | 0.136 |
| 25 | 3.08 | 0.0047 | 0.119 |
| 40 | 3.35 | 0.0039 | 0.098 |
| 50 | 3.52 | 0.0034 | 0.087 |
| 60 | 3.71 | 0.0030 | 0.077 |
| 75 | 4.07 | 0.0023 | 0.059 |
| 84 | 4.48 | 0.0018 | 0.045 |
| 90 | 5.24 | 0.0010 | 0.026 |
| 95 | 7.24 | 0.0003 | 0.007 |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 3.52 | 3.52 | 3.52 |
| Median, in. | 0.0034 | 0.0034 | 0.0034 |
| Median, mm | 0.087 | 0.087 | 0.087 |
| Mean, phi | 3.49 | 3.68 | 3.63 |
| Mean, in. | 0.0035 | 0.0031 | 0.0032 |
| Mean, mm | 0.089 | 0.078 | 0.081 |
| Sorting | 1.413 | 0.803 | 1.120 |
| Skewness | 0.963 | 0.197 | 0.384 |
| Kurtosis | 0.233 | 1.952 | 1.947 |

| Grain Size Description | | Fine sand | |
|------------------------|---------------------|----------------------------|--|
| (ASTM-USCS Scale) | | (based on Mean from Trask) | |
| | | | |
| Description | Retained on Sieve # | Weight Percent | |
| Gravel | 4 | 0.00 | |
| Coarse Sand | 10 | 0.00 | |
| Medium Sand | 40 | 0.00 | |
| Fine Sand | 200 | 62.40 | |
| Silt | >0.005 mm | 33.29 | |
| Clay | <0.005 mm | 4.31 | |
| Total | | 100 | |

Client: Groundwater Services, Inc.
Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
Project No: GSI Job No. G-2876

PTS File No: 34379
Sample ID: A1-14 (35-37)
Depth, ft: 35.3



| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent |
|---------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.39 | 2.43 | 2.43 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.90 | 5.61 | 8.04 |
| 0.0557 | 1.414 | -0.50 | 14 | 1.28 | 7.98 | 16.02 |
| 0.0394 | 1.000 | 0.00 | 18 | 1.93 | 12.03 | 28.05 |
| 0.0278 | 0.707 | 0.50 | 25 | 2.83 | 17.64 | 45.70 |
| 0.0197 | 0.500 | 1.00 | 35 | 3.09 | 19.26 | 64.96 |
| 0.0166 | 0.420 | 1.25 | 40 | 1.30 | 8.10 | 73.07 |
| 0.0139 | 0.354 | 1.50 | 45 | 0.64 | 3.99 | 77.06 |
| 0.0098 | 0.250 | 2.00 | 60 | 1.25 | 7.79 | 84.85 |
| 0.0070 | 0.177 | 2.50 | 80 | 0.99 | 6.17 | 91.02 |
| 0.0049 | 0.125 | 3.00 | 120 | 1.08 | 6.73 | 97.76 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.23 | 1.43 | 99.19 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.06 | 0.37 | 99.56 |
| 0.0015 | 0.037 | 4.75 | 400 | 0.04 | 0.25 | 99.81 |
| | | | PAN | 0.03 | 0.19 | 100.00 |
| TOTALS | | | | | | |
| | | | | 16.04 | 100.00 | 100.00 |

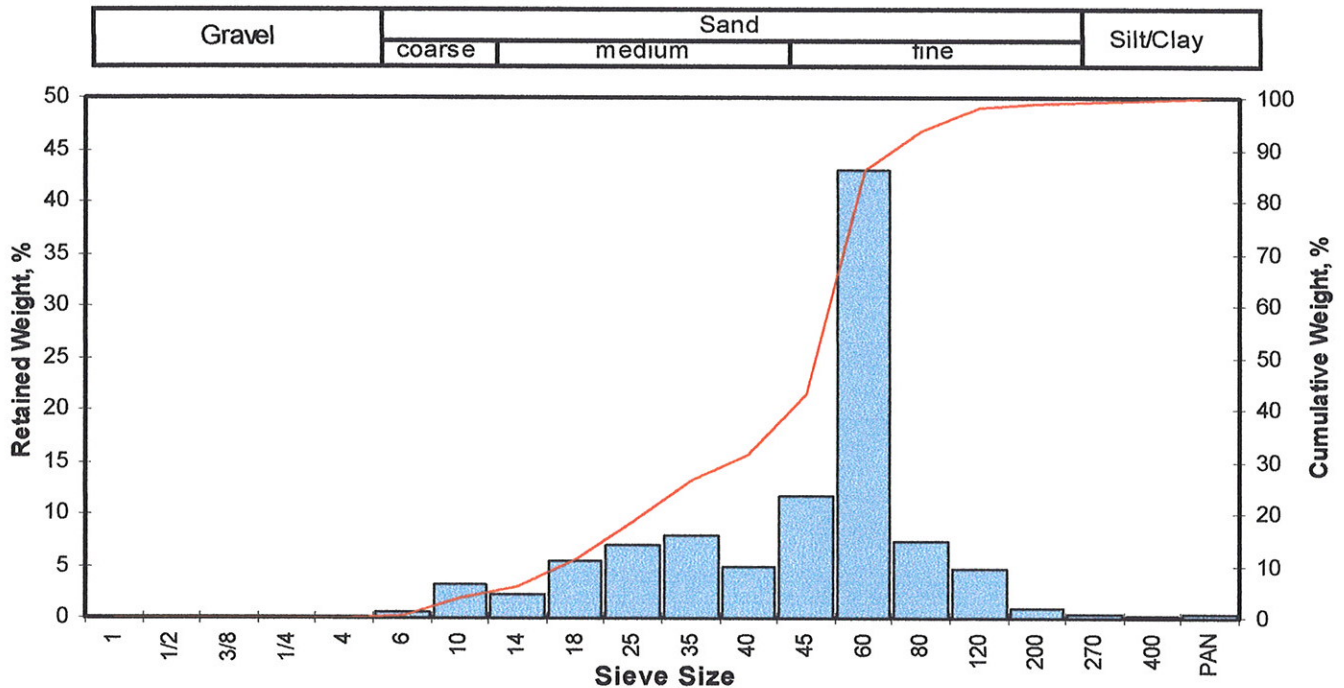
| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -1.41 | 0.1044 | 2.651 |
| 10 | -0.88 | 0.0723 | 1.837 |
| 16 | -0.50 | 0.0557 | 1.416 |
| 25 | -0.13 | 0.0430 | 1.092 |
| 40 | 0.34 | 0.0311 | 0.791 |
| 50 | 0.61 | 0.0258 | 0.654 |
| 60 | 0.87 | 0.0215 | 0.547 |
| 75 | 1.37 | 0.0152 | 0.387 |
| 84 | 1.95 | 0.0102 | 0.260 |
| 90 | 2.42 | 0.0074 | 0.187 |
| 95 | 2.80 | 0.0057 | 0.144 |

| Measure | Trask | Inman | Folk-Ward |
|--|--------|--|-----------|
| Median, phi | 0.61 | 0.61 | 0.61 |
| Median, in. | 0.0258 | 0.0258 | 0.0258 |
| Median, mm | 0.654 | 0.654 | 0.654 |
| Mean, phi | 0.44 | 0.72 | 0.69 |
| Mean, in. | 0.0291 | 0.0239 | 0.0245 |
| Mean, mm | 0.739 | 0.606 | 0.622 |
| Sorting | 1.681 | 1.223 | 1.248 |
| Skewness | 0.993 | 0.090 | 0.065 |
| Kurtosis | 0.214 | 0.717 | 1.150 |
| Grain Size Description (ASTM-USCS Scale) | | Medium sand (based on Mean from Trask) | |

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 0.00 |
| Coarse Sand | 10 | 8.04 |
| Medium Sand | 40 | 65.02 |
| Fine Sand | 200 | 26.12 |
| Silt/Clay | <200 | 0.81 |
| Total | | 100 |

Client: Groundwater Services, Inc.
 Project: DNAPL Characterization Study, Sauget Area 1 Sites, Sauget Illinois
 Project No: GSI Job No. G-2876


PTS File No: 34379
 Sample ID: A1-6 (35-37)
 Depth, ft: 35.8



| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|---------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|--|-----------|---------------|-------------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | | | Inches | Millimeters |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 | 5 | -0.73 | 0.0652 | 1.655 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 | 10 | -0.13 | 0.0432 | 1.098 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 | 16 | 0.32 | 0.0315 | 0.799 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 25 | 0.91 | 0.0209 | 0.532 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 | 40 | 1.44 | 0.0145 | 0.369 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.05 | 0.49 | 0.49 | 50 | 1.58 | 0.0132 | 0.334 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.33 | 3.23 | 3.72 | 60 | 1.70 | 0.0121 | 0.308 |
| 0.0557 | 1.414 | -0.50 | 14 | 0.24 | 2.35 | 6.07 | 75 | 1.87 | 0.0108 | 0.273 |
| 0.0394 | 1.000 | 0.00 | 18 | 0.55 | 5.38 | 11.45 | 84 | 1.98 | 0.0100 | 0.254 |
| 0.0278 | 0.707 | 0.50 | 25 | 0.72 | 7.05 | 18.49 | 90 | 2.27 | 0.0082 | 0.208 |
| 0.0197 | 0.500 | 1.00 | 35 | 0.81 | 7.93 | 26.42 | 95 | 2.67 | 0.0062 | 0.158 |
| 0.0166 | 0.420 | 1.25 | 40 | 0.50 | 4.89 | 31.31 | | | | |
| 0.0139 | 0.354 | 1.50 | 45 | 1.19 | 11.64 | 42.95 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 4.40 | 43.05 | 86.01 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 0.76 | 7.44 | 93.44 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 0.48 | 4.70 | 98.14 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 0.09 | 0.88 | 99.02 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 0.04 | 0.39 | 99.41 | | | | |
| 0.0015 | 0.037 | 4.75 | 400 | 0.02 | 0.20 | 99.61 | | | | |
| | | | PAN | 0.04 | 0.39 | 100.00 | | | | |
| TOTALS | | | | | | | 10.22 | 100.00 | 100.00 | |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 1.58 | 1.58 | 1.58 |
| Median, in. | 0.0132 | 0.0132 | 0.0132 |
| Median, mm | 0.334 | 0.334 | 0.334 |
| Mean, phi | 1.31 | 1.15 | 1.29 |
| Mean, in. | 0.0158 | 0.0177 | 0.0161 |
| Mean, mm | 0.403 | 0.451 | 0.408 |
| Sorting | 1.396 | 0.827 | 0.927 |
| Skewness | 1.141 | -0.522 | -0.442 |
| Kurtosis | 0.145 | 1.052 | 1.446 |

| Grain Size Description | | Fine sand | |
|------------------------|---------------------|----------------------------|--|
| (ASTM-USCS Scale) | | (based on Mean from Trask) | |
| Description | Retained on Sieve # | Weight Percent | |
| Gravel | 4 | 0.00 | |
| Coarse Sand | 10 | 3.72 | |
| Medium Sand | 40 | 27.59 | |
| Fine Sand | 200 | 67.71 | |
| Silt/Clay | <200 | 0.98 | |
| Total | | 100 | |

| | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| COMPANY Groundwater Services ADDRESS 2211 Norfolk St. 1000 Nov. TX 77098 CITY PROJECT MANAGER James Kearley PHONE NUMBER 713-522-6300 PROJECT NAME Station Area 1 PROJECT NUMBER 6-2876 SITE LOCATION Sargent Hill SAMPLER SIGNATURE  | | | ANALYSIS REQUEST PO# SPECIAL HANDLING 24 HOURS 5 DAYS 72 HOURS NORMAL OTHER SAMPLE CONDITIONS RECEIVED ON ICE YES/NO SEALED YES/NO OTHER: COMMENTS 2 (8oz Jars) | | | | | | | | | | | | | | |
| SAMPLE ID NUMBER DATE TIME DEPTH, ft | | | PHYSICAL PROPERTIES PACKAGE, API RP40 MOISTURE CONTENT, ASTM D2216 POROSITY, TOTAL, API RP40 GRAIN DENSITY, API RP40 BULK DENSITY (DRY), API RP40 AIR PERMEABILITY, API RP40 SPECIFIC RETENTION/YIELD, ASTM D425M CAPILLARY PRESSURE, ASTM D425M SOIL PH, EPA 9045 POROSITY: EFFECTIVE, ASTM D425M TCEO/INRCO PROPERTIES PACKAGE GRAIN SIZE DISTRIBUTION, ASTM D422/4464M HYDRAULIC CONDUCTIVITY, EPA9100, API RP40 TOC: WALKLEY-BLACK HYDRAULIC CONDUCTIVE PACKAGE ATTERBERG LIMITS, ASTM D4318 NUMBER OF SAMPLES | | | | | | | | | | | | | | |
| A1-11 ↓ A1-02 A1-03 | | | 9/15/04 0815 40-42.5 ↓ 0915 57.5-60 9/16/04 1640 85-87.5 9/16/04 1420 90-92.5 | | | | | | | | | | | | | | |
| 1. RELINQUISHED BY Tim Nickels COMPANY 651 | | | 2. RELINQUISHED BY A. Wang COMPANY P13 | | | | | | | | | | | | | | |
| DATE TIME 9/16/04 0745 | | | 4. RELINQUISHED BY DATE TIME 9/16/04 1000 | | | | | | | | | | | | | | |

PTS Laboratories, Inc. - 8100 Secura Way - Santa Fe Springs, CA 90670 - Phone (562) 907-3607 - Fax (562) 907-3610
 PTS GeoLabs, Inc. - 4342 W. 12th St. - Houston, TX 77055 - Phone (713) 680-9467 - (713) 680-0763

PAGE 2 OF 2

COMPANY

PROJECT MANAGER

| PROJECT NAME | PHONE NUMBER |
|--------------|--------------|
| | |

PROJECT NUMBER _____ **FAX NUMBER** _____

SITE LOCATION

SAMPLER SIGNATURE

DEPTH, FT

16'-18'

45:47

85-87

1-05-

COMPANY

DATE _____

Abstract

EMIL

TIME

PTS Geolabs, Inc. • 8100 Secura Way • Santa Fe Springs, CA 90670 • Phone (562) 907-3607 • Fax (562) 907-3610
PTS Geolabs, Inc. • 4342 W. 12th St. • Houston, TX 77055 • Phone (713) 680-2291 • Fax (713) 680-0763

PO#

| | | |
|-------|--------|-------|
| A1-1D | 927.04 | 72.74 |
|-------|--------|-------|

TIME

PTS Geolabs, Inc. • 8100 Secura Way • Santa Fe Springs, CA 90670 • Phone (562) 907-3607 • Fax (562) 907-3610
PTS Geolabs, Inc. • 4342 W. 12th St. • Houston, TX 77055 • Phone (713) 680-2291 • Fax (713) 680-0763

DATE 10/12/04 PTS FILE # 31379

CHAIN OF CUSTODY RECORD

PAGE

OF

COMPANY

Groundwater Services, Inc.

ADDRESS
2211 Norwalk Ste #1000 Houston, TX 77098
PROJECT MANAGER
JAMES HEARLEY
PROJECT NAME
SOLARIA AREA 1
PHONE NUMBER
413 522-6300
PROJECT NUMBER
G-2876-104
FAX NUMBER
413 522-8010
SITE LOCATION
IL

SAMPLER SIGNATURE

[Signature]

| SAMPLE ID NUMBER | DATE | TIME | DEPTH, FT |
|------------------|---------|------|-----------|
| A1-1 | 10/7/04 | | 15'-17" |
| A1-1 | 10/7/04 | | 35'-37" |
| A1-1 | 10/7/04 | | 65'-67" |
| A1-1 | 10/7/04 | | 85'-87" |
| A1-6 | 10/6/04 | | 35'-37" |
| A1-6 | 10/6/04 | | 65'-67" |
| A1-6 | 10/6/04 | | 85'-87" |
| A1-12 | 10/5/04 | | 35'-37" |
| A1-12 | 10/5/04 | | 65'-67" |

1. RELINQUISHED BY

[Signature]

COMPANY

[Signature]

2. RECEIVED BY

[Signature]

COMPANY

[Signature]

DATE 10/11/04 TIME 0955

DATE 10/12/04 TIME 1000

3. RELINQUISHED BY

COMPANY

DATE

TIME

4. RECEIVED BY

COMPANY

DATE

TIME

ANALYSIS REQUEST

| | |
|--|--|
| PHYSICAL PROPERTIES PACKAGE, API RP40 | |
| MOISTURE CONTENT, ASTM D2216 | |
| POROSITY, API RP40 | |
| GRAIN DENSITY, API RP40 | |
| BULK DENSITY, API RP40 | |
| AIR PERMEABILITY, API RP40 | |
| SPECIFIC RETENTION/YIELD, ASTM D425 | |
| CATION EXCHANGE CAPACITY, EPS 9080 | |
| SOIL PH, EPA 9045 | |
| GRAIN SIZE: DRY, 400 MESH | |
| GRAIN SIZE: SIEVE & LASER | |
| GRAIN SIZE: LASER, 1 MICRON | |
| HYDRAULIC CONDUCTIVITY, EPA 9100, API RP40 | |
| TOC: WALKLEY-BLACK | |
| HYDRAULIC CONDUCTIVITY PACKAGE | |

PO# G-2876-104

| | |
|-------------------|--------|
| SPECIAL HANDLING | |
| 24 HOURS | 5 DAYS |
| 72 HOURS | NORMAL |
| OTHER | |
| SAMPLE CONDITIONS | |
| RECEIVED ON ICE | YES/NO |
| SEALED | YES/NO |
| OTHER | YES/NO |

COMMENTS

#03

ADDRESS

22-11 Norfolk St 1000
MANAGER

713-522-6300
PHONE NUMBER

FAX NUMBER

6-2876

$$\frac{1}{2}$$

DEPTH, FT

24-26

15-17

35-37

65-67

85-87

84-86

35-37

75-77

80-27

2. RECEIVED BY *AD*

COMPANY

TIME

DATE 10/4/04

GeoLabs, Inc. • 8100 Secura Way • Santa Fe 8
GeoLabs, Inc. • 4342 W. 12th St. • Houston

PTS Geolabs, Inc. • 8100 Secura Way • Santa Fe Springs, CA 90670 • Phone (562) 907-3607 • Fax (562) 907-3610
PTS Geolabs, Inc. • 4342 W. 12th St. • Houston, TX 77055 • Phone (713) 680-2291 • Fax (713) 680-0763

72

November 22, 2005

James A. Kearley
Groundwater Services, Inc.
2211 Norfolk, Suite 1000
Houston, Texas 77098

RECEIVED

NOV 29 2005

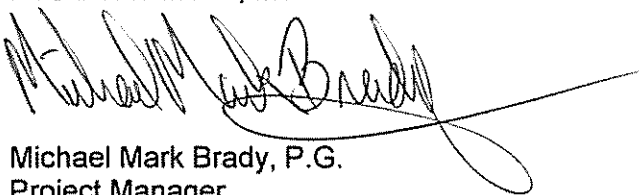
Re: Physical Properties Analyses
PTS File No: 35607, GSI Job No. G-2876-102
Solutia/Sauget Area 1 Sites

Dear Mr. Kearley:

Please find enclosed results of Physical Properties Analyses conducted on core received from your Solutia/Sauget Area 1 Sites project, GSI Job No. G-2876-102. An electronic version of the report has previously been sent to your attention. All analyses were performed by applicable ASTM, EPA, or API methodologies. The remaining core is currently in storage pending further analyses and after thirty days will be added to the previously received core (PTS File 34379) for long term frozen storage at no additional charge. You may contact me regarding return of the core to site.

PTS Laboratories, Inc. appreciates the opportunity to be of service. If you have any questions or require additional information, please give me a call at (562) 907-3607.

Sincerely,
PTS Laboratories, Inc.



Michael Mark Brady, P.G.
Project Manager

Encl.

Project Name: Solutia / Saugnet Area 1 Sites
Project Number: G-2876-102

TEST PROGRAM

| CORE ID | Depth ft. | Core Recovery ft. | Slab and Core Photo | Pore Fluid Saturation Package | Grain Size Analysis | Free Product Mobility | Effective Porosity Pkg plus Bulk D | Fluid Properties Pkg. | Notes |
|---------------|--------------|-------------------------|---------------------------|-------------------------------------|---------------------------|-----------------------------|--|-----------------------------|------------------|
| | | Plugs: | 1/4:3/4 | Vert. 1.5" | Grab | Vert. 1.5" | Vert. 1.5" | Bulk | HOLD CORE FROZEN |
| A1-19 (18-20) | 18-20 | 2 | Not Requested | Not Requested | 18.5 | Not Requested | 18.5 | | |
| A1-19 (46-48) | 46-48 | 2 | Not Requested | Not Requested | 46.5 | Not Requested | 46.5 | | |
| A1-19 (86-88) | 86-88 | 2 | Not Requested | Not Requested | 86.5 | Not Requested | 86.5 | | |
| TOTALS: | 3 cores | 6.0 | 0 | 0 | 3 | 0 | 3 | 0 | |

Laboratory Test Program Notes

PHYSICAL PROPERTIES DATA

Drainage (Effective) Porosity

PROJECT NAME: Solutia / Sauget Area 1 Sites

PROJECT NO: G-2876-102

| SAMPLE ID. | DEPTH, ft. | METHOD: SAMPLE ORIENTATION (1) | API RP 40 BULK DENSITY, (g/cc) | ASTM D 425M | |
|---------------|---------------|---|---|----------------|--------------------|
| | | | | POROSITY | |
| | | | | TOTAL, % Vb | EFFECTIVE, % Vb |
| A1-19 (18-20) | 18.5 | V | 1.56 | 48.2 | 30.4 |
| A1-19 (46-48) | 46.5 | V | 1.76 | 33.1 | 26.8 |
| A1-19 (86-88) | 86.5 | V | 1.90 | 28.4 | 21.3 |

(1) Sample Orientation: H = horizontal; V = vertical Vb = Bulk Volume, cc;

PARTICLE SIZE SUMMARY

(METHODODOLOGY: ASTM D422/D4464M)

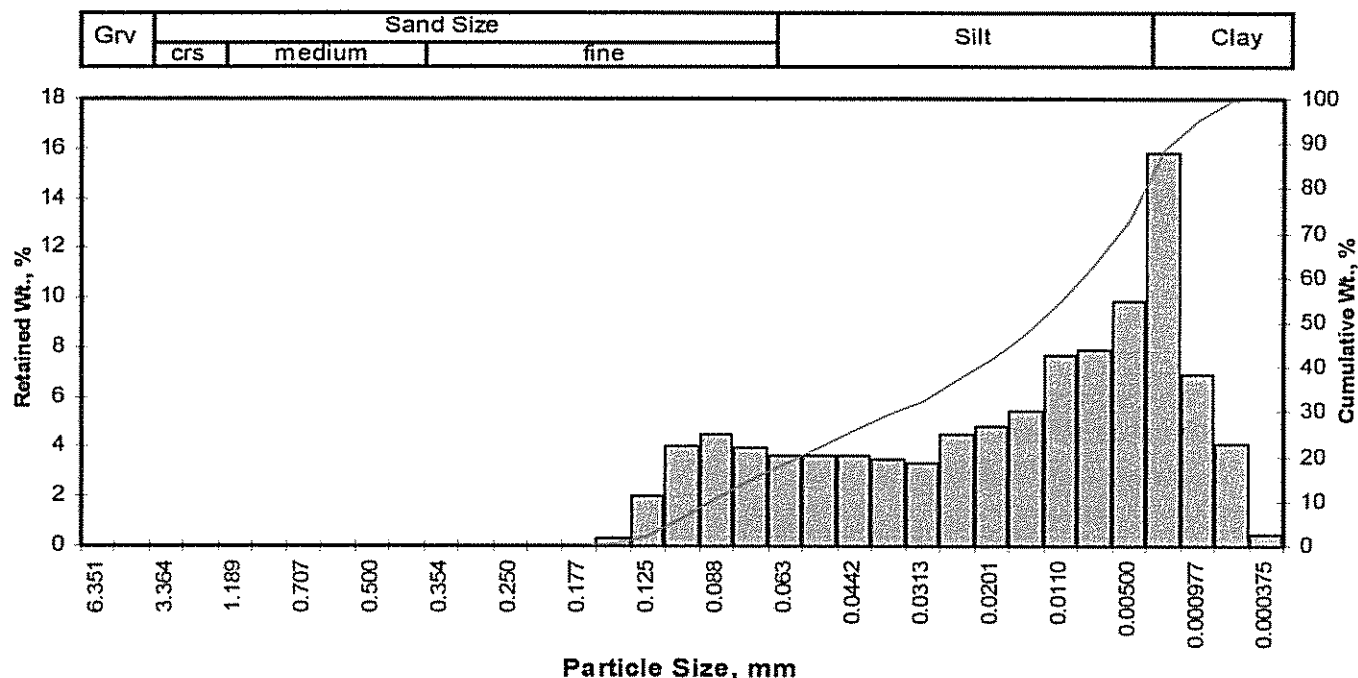
PROJECT NAME: Solutia / Saugnet Area 1 Sites
PROJECT NO: G-2876-102

| Sample ID | Depth, ft. | Mean Grain Size Description (1) | Median Grain Size mm | Particle Size Distribution, wt. percent | | | | | | | Silt & Clay |
|---------------|------------|---------------------------------|----------------------|---|-----------|--------|-------|-------|-------|-------|-------------|
| | | | | Gravel | Sand Size | | | Silt | | Clay | |
| | | | | | Coarse | Medium | Fine | | | | |
| | | | | | | | | | | | |
| AI-19 (18-20) | 18.5 | Silt | 0.014 | 0.00 | 0.00 | 0.00 | 14.76 | 57.96 | 27.29 | 85.24 | |
| A1-19 (46-48) | 46.5 | Medium sand | 0.571 | 3.70 | 8.00 | 56.75 | 27.82 | (2) | (2) | 3.73 | |
| A1-19 (86-88) | 86.5 | Gravel | 1.692 | 36.26 | 11.61 | 40.03 | 11.56 | (2) | (2) | 0.55 | |

(1) Based on Mean from Trask
(2) Mechanical sieve does not differentiate silt/clay fractions

Client: Groundwater Services, Inc.
Project: Solutia / Sauget Area 1 Sites
Project No: G-2876-102

PTS File No: 35607
Sample ID: AI-19 (18-20)
Depth, ft: 18.5



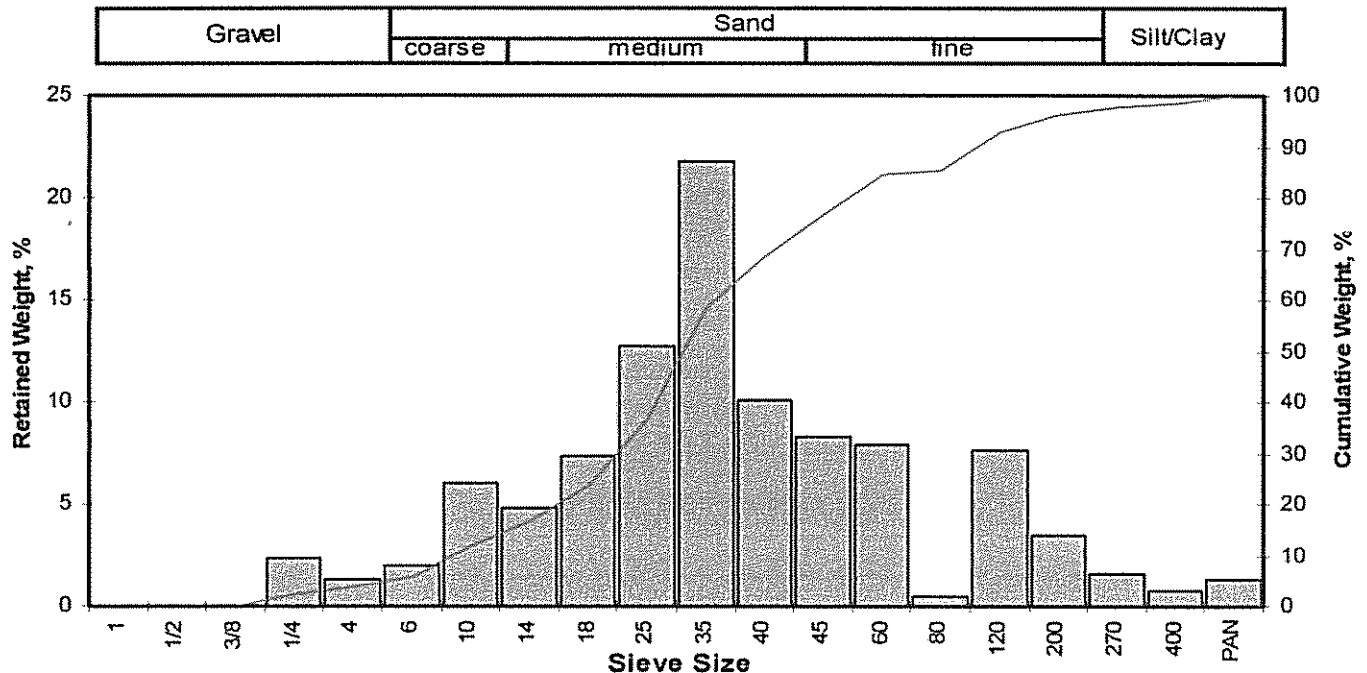
| Opening | | Phi of Screen | U.S. No. | Sample Weight, grams | Increment Weight, percent | Cumulative Weight, percent | Cumulative Weight Percent greater than | | | |
|----------|-------------|---------------|----------|----------------------|---------------------------|----------------------------|--|-----------|---------------|-------|
| Inches | Millimeters | | | | | | Weight percent | Phi Value | Particle Size | |
| | | | | | | | | Inches | Millimeters | |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.00 | 0.00 | 0.00 | 5 | 3.17 | 0.0044 | 0.111 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.00 | 0.00 | 0.00 | 10 | 3.46 | 0.0036 | 0.091 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.00 | 0.00 | 0.00 | 16 | 3.84 | 0.0028 | 0.070 |
| 0.0787 | 2.000 | -1.00 | 10 | 0.00 | 0.00 | 0.00 | 25 | 4.45 | 0.0018 | 0.046 |
| 0.0468 | 1.189 | -0.25 | 16 | 0.00 | 0.00 | 0.00 | 40 | 5.52 | 0.0009 | 0.022 |
| 0.0331 | 0.841 | 0.25 | 20 | 0.00 | 0.00 | 0.00 | 50 | 6.18 | 0.0005 | 0.014 |
| 0.0278 | 0.707 | 0.50 | 25 | 0.00 | 0.00 | 0.00 | 60 | 6.82 | 0.0003 | 0.009 |
| 0.0234 | 0.595 | 0.75 | 30 | 0.00 | 0.00 | 0.00 | 75 | 7.84 | 0.0002 | 0.004 |
| 0.0197 | 0.500 | 1.00 | 35 | 0.00 | 0.00 | 0.00 | 84 | 8.61 | 0.0001 | 0.003 |
| 0.0166 | 0.420 | 1.25 | 40 | 0.00 | 0.00 | 0.00 | 90 | 9.21 | 0.0001 | 0.002 |
| 0.0139 | 0.354 | 1.50 | 45 | 0.00 | 0.00 | 0.00 | 95 | 9.94 | 0.0000 | 0.001 |
| 0.0117 | 0.297 | 1.75 | 50 | 0.00 | 0.00 | 0.00 | | | | |
| 0.0098 | 0.250 | 2.00 | 60 | 0.00 | 0.00 | 0.00 | | | | |
| 0.0083 | 0.210 | 2.25 | 70 | 0.00 | 0.00 | 0.00 | | | | |
| 0.0070 | 0.177 | 2.50 | 80 | 0.00 | 0.00 | 0.00 | | | | |
| 0.0059 | 0.149 | 2.75 | 100 | 0.28 | 0.28 | 0.28 | | | | |
| 0.0049 | 0.125 | 3.00 | 120 | 2.00 | 2.00 | 2.28 | | | | |
| 0.0041 | 0.105 | 3.25 | 140 | 4.04 | 4.04 | 6.32 | | | | |
| 0.0035 | 0.088 | 3.50 | 170 | 4.48 | 4.48 | 10.81 | | | | |
| 0.0029 | 0.074 | 3.75 | 200 | 3.95 | 3.95 | 14.76 | | | | |
| 0.0025 | 0.063 | 4.00 | 230 | 3.62 | 3.62 | 18.38 | | | | |
| 0.0021 | 0.053 | 4.25 | 270 | 3.66 | 3.66 | 22.04 | | | | |
| 0.00174 | 0.0442 | 4.50 | 325 | 3.65 | 3.65 | 25.69 | | | | |
| 0.00146 | 0.0372 | 4.75 | 400 | 3.47 | 3.47 | 29.16 | | | | |
| 0.00123 | 0.0313 | 5.00 | 450 | 3.37 | 3.37 | 32.53 | | | | |
| 0.000986 | 0.0250 | 5.32 | 500 | 4.47 | 4.47 | 37.00 | | | | |
| 0.000790 | 0.0201 | 5.64 | 635 | 4.80 | 4.80 | 41.80 | | | | |
| 0.000615 | 0.0156 | 6.00 | | 5.42 | 5.42 | 47.23 | | | | |
| 0.000435 | 0.0110 | 6.50 | | 7.69 | 7.69 | 54.92 | | | | |
| 0.000308 | 0.00781 | 7.00 | | 7.95 | 7.95 | 62.87 | | | | |
| 0.000197 | 0.00500 | 7.65 | | 9.84 | 9.84 | 72.71 | | | | |
| 0.000077 | 0.00195 | 9.00 | | 15.80 | 15.80 | 88.52 | | | | |
| 0.000038 | 0.000977 | 10.00 | | 6.93 | 6.93 | 95.45 | | | | |
| 0.000019 | 0.000488 | 11.00 | | 4.09 | 4.09 | 99.54 | | | | |
| 0.000015 | 0.000375 | 11.38 | | 0.46 | 0.46 | 100.00 | | | | |
| TOTALS | | | | 100.00 | 100.00 | 100.00 | | | | |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 6.18 | 6.18 | 6.18 |
| Median, in. | 0.0005 | 0.0005 | 0.0005 |
| Median, mm | 0.014 | 0.014 | 0.014 |
| Mean, phi | 5.32 | 6.22 | 6.21 |
| Mean, in. | 0.0010 | 0.0005 | 0.0005 |
| Mean, mm | 0.025 | 0.013 | 0.014 |
| Sorting | 3.236 | 2.388 | 2.220 |
| Skewness | 1.023 | 0.018 | 0.064 |
| Kurtosis | 0.231 | 0.417 | 0.819 |

| Grain Size Description | | Silt | |
|------------------------|---------------------|----------------------------|--|
| (ASTM-USCS Scale) | | (based on Mean from Trask) | |
| | | | |
| Description | Retained on Sieve # | Weight Percent | |
| | | | |
| Gravel | 4 | 0.00 | |
| Coarse Sand | 10 | 0.00 | |
| Medium Sand | 40 | 0.00 | |
| Fine Sand | 200 | 14.76 | |
| Silt | >0.005 mm | 57.96 | |
| Clay | <0.005 mm | 27.29 | |
| Total | | 100 | |

Client: Groundwater Services, Inc.
Project: Solutia / Sauget Area 1 Sites
Project No: G-2876-102

PTS File No: 35607
Sample ID: A1-19 (46-48)
Depth, ft: 46.5



| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent |
|---------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 0.00 | 0.00 | 0.00 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 0.71 | 2.39 | 2.39 |
| 0.1873 | 4.757 | -2.25 | 4 | 0.39 | 1.31 | 3.70 |
| 0.1324 | 3.364 | -1.75 | 6 | 0.59 | 1.98 | 5.68 |
| 0.0787 | 2.000 | -1.00 | 10 | 1.79 | 6.01 | 11.69 |
| 0.0557 | 1.414 | -0.50 | 14 | 1.43 | 4.81 | 16.50 |
| 0.0394 | 1.000 | 0.00 | 18 | 2.18 | 7.33 | 23.82 |
| 0.0278 | 0.707 | 0.50 | 25 | 3.79 | 12.74 | 36.56 |
| 0.0197 | 0.500 | 1.00 | 35 | 6.49 | 21.81 | 58.37 |
| 0.0166 | 0.420 | 1.25 | 40 | 3.00 | 10.08 | 68.45 |
| 0.0139 | 0.354 | 1.50 | 45 | 2.46 | 8.27 | 76.71 |
| 0.0098 | 0.250 | 2.00 | 60 | 2.37 | 7.96 | 84.68 |
| 0.0070 | 0.177 | 2.50 | 80 | 0.14 | 0.47 | 85.15 |
| 0.0049 | 0.125 | 3.00 | 120 | 2.28 | 7.66 | 92.81 |
| 0.0029 | 0.074 | 3.75 | 200 | 1.03 | 3.46 | 96.27 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.48 | 1.61 | 97.88 |
| 0.0015 | 0.037 | 4.75 | 400 | 0.23 | 0.77 | 98.66 |
| | | | PAN | 0.40 | 1.34 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -1.92 | 0.1491 | 3.787 |
| 10 | -1.21 | 0.0912 | 2.315 |
| 16 | -0.55 | 0.0577 | 1.466 |
| 25 | 0.05 | 0.0381 | 0.969 |
| 40 | 0.58 | 0.0264 | 0.669 |
| 50 | 0.81 | 0.0225 | 0.571 |
| 60 | 1.04 | 0.0191 | 0.486 |
| 75 | 1.45 | 0.0144 | 0.366 |
| 84 | 1.96 | 0.0101 | 0.257 |
| 90 | 2.82 | 0.0056 | 0.142 |
| 95 | 3.47 | 0.0035 | 0.090 |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | 0.81 | 0.81 | 0.81 |
| Median, in. | 0.0225 | 0.0225 | 0.0225 |
| Median, mm | 0.571 | 0.571 | 0.571 |
| Mean, phi | 0.58 | 0.70 | 0.74 |
| Mean, in. | 0.0263 | 0.0242 | 0.0236 |
| Mean, mm | 0.667 | 0.614 | 0.600 |
| Sorting | 1.626 | 1.255 | 1.445 |
| Skewness | 1.043 | -0.084 | -0.048 |
| Kurtosis | 0.139 | 1.150 | 1.577 |

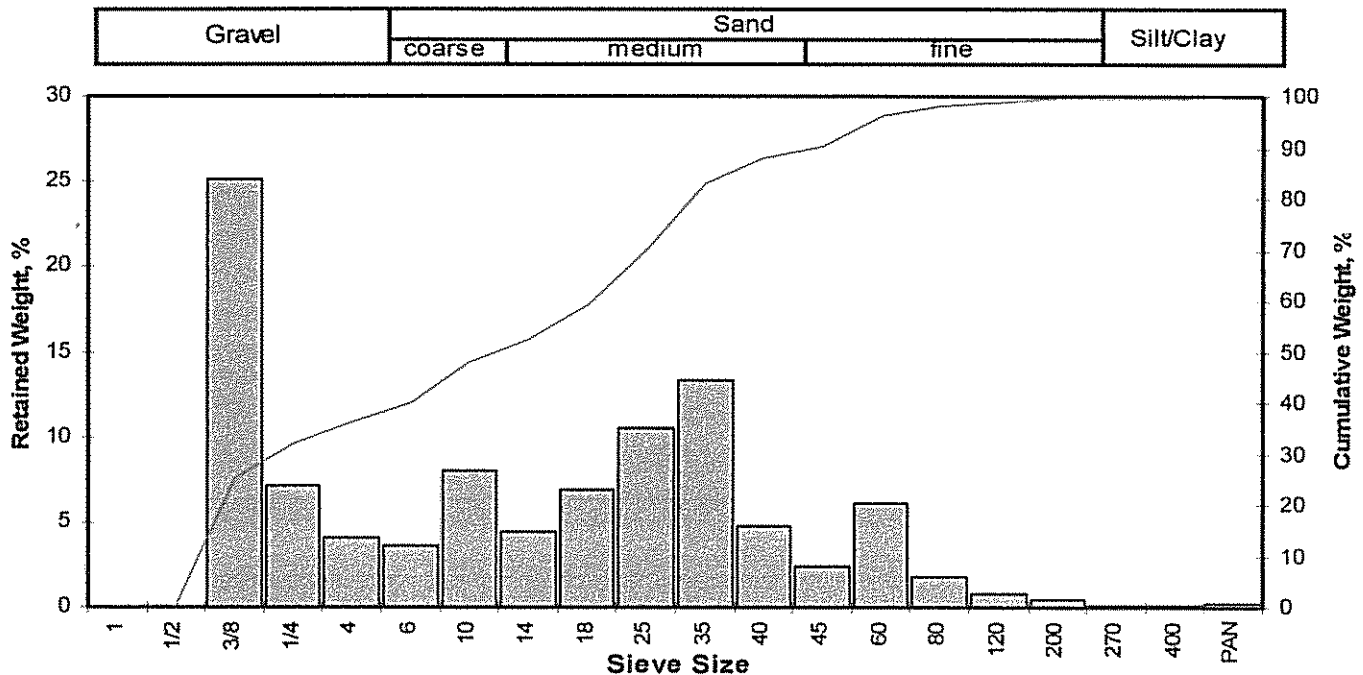
| Grain Size Description (ASTM-USCS Scale) | Medium sand (based on Mean from Trask) |
|--|--|
|--|--|

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 3.70 |
| Coarse Sand | 10 | 8.00 |
| Medium Sand | 40 | 56.75 |
| Fine Sand | 200 | 27.82 |
| Silt/Clay | <200 | 3.73 |
| Total | | 100 |

TOTALS 29.76 100.00 100.00

Client: Groundwater Services, Inc.
Project: Solutia / Saugnet Area 1 Sites
Project No: G-2876-102

PTS File No: 35607
Sample ID: A1-19 (86-88)
Depth, ft: 86.5



| Opening | | Phi of Screen | U.S. Sieve No. | Sample Weight grams | Incremental Weight, percent | Cumulative Weight, percent |
|---------|-------------|---------------|----------------|---------------------|-----------------------------|----------------------------|
| Inches | Millimeters | | | | | |
| 0.9844 | 25.002 | -4.64 | 1 | 0.00 | 0.00 | 0.00 |
| 0.4922 | 12.501 | -3.64 | 1/2 | 0.00 | 0.00 | 0.00 |
| 0.3740 | 9.500 | -3.25 | 3/8 | 10.00 | 25.13 | 25.13 |
| 0.2500 | 6.351 | -2.67 | 1/4 | 2.82 | 7.09 | 32.21 |
| 0.1873 | 4.757 | -2.25 | 4 | 1.61 | 4.05 | 36.26 |
| 0.1324 | 3.364 | -1.75 | 6 | 1.44 | 3.62 | 39.87 |
| 0.0787 | 2.000 | -1.00 | 10 | 3.18 | 7.99 | 47.86 |
| 0.0557 | 1.414 | -0.50 | 14 | 1.76 | 4.42 | 52.29 |
| 0.0394 | 1.000 | 0.00 | 18 | 2.77 | 6.96 | 59.25 |
| 0.0278 | 0.707 | 0.50 | 25 | 4.21 | 10.58 | 69.82 |
| 0.0197 | 0.500 | 1.00 | 35 | 5.30 | 13.32 | 83.14 |
| 0.0166 | 0.420 | 1.25 | 40 | 1.89 | 4.75 | 87.89 |
| 0.0139 | 0.354 | 1.50 | 45 | 0.96 | 2.41 | 90.30 |
| 0.0098 | 0.250 | 2.00 | 60 | 2.42 | 6.08 | 96.38 |
| 0.0070 | 0.177 | 2.50 | 80 | 0.70 | 1.76 | 98.14 |
| 0.0049 | 0.125 | 3.00 | 120 | 0.32 | 0.80 | 98.94 |
| 0.0029 | 0.074 | 3.75 | 200 | 0.20 | 0.50 | 99.45 |
| 0.0021 | 0.053 | 4.25 | 270 | 0.06 | 0.15 | 99.60 |
| 0.0015 | 0.037 | 4.75 | 400 | 0.06 | 0.15 | 99.75 |
| PAN | | | | 0.10 | 0.25 | 100.00 |

| Cumulative Weight Percent greater than | | | |
|--|-----------|---------------|-------------|
| Weight percent | Phi Value | Particle Size | |
| | | Inches | Millimeters |
| 5 | -3.57 | 0.4660 | 11.837 |
| 10 | -3.49 | 0.4412 | 11.207 |
| 16 | -3.39 | 0.4132 | 10.496 |
| 25 | -3.25 | 0.3745 | 9.514 |
| 40 | -1.74 | 0.1313 | 3.336 |
| 50 | -0.76 | 0.0666 | 1.692 |
| 60 | 0.04 | 0.0384 | 0.976 |
| 75 | 0.69 | 0.0243 | 0.618 |
| 84 | 1.05 | 0.0191 | 0.485 |
| 90 | 1.47 | 0.0142 | 0.361 |
| 95 | 1.89 | 0.0106 | 0.270 |

| Measure | Trask | Inman | Folk-Ward |
|-------------|--------|--------|-----------|
| Median, phi | -0.76 | -0.76 | -0.76 |
| Median, in. | 0.0666 | 0.0666 | 0.0666 |
| Median, mm | 1.692 | 1.692 | 1.692 |
| Mean, phi | -2.34 | -1.17 | -1.04 |
| Mean, in. | 0.1994 | 0.0888 | 0.0807 |
| Mean, mm | 5.066 | 2.255 | 2.049 |
| Sorting | 3.924 | 2.219 | 1.935 |
| Skewness | 1.433 | -0.187 | -0.108 |
| Kurtosis | 0.410 | 0.229 | 0.566 |

| Grain Size Description (ASTM-USCS Scale) | Gravel (based on Mean from Trask) |
|---|--------------------------------------|
|---|--------------------------------------|

| Description | Retained on Sieve # | Weight Percent |
|-------------|---------------------|----------------|
| Gravel | 4 | 36.26 |
| Coarse Sand | 10 | 11.61 |
| Medium Sand | 40 | 40.03 |
| Fine Sand | 200 | 11.56 |
| Silt/Clay | <200 | 0.55 |

TOTALS 39.80 100.00 100.00

Total 100

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